

THE MINING CONGRESS JOURNAL

VOL. I

No. 2

SAFETY—EFFICIENCY—CONSERVATION

OUR MISSION

TO reduce, so far as is humanly possible, the number of killed and injured in mining operations;—to provide for the widows and orphans created by unavoidable accidents through a system of workmen's compensation, fair alike to the employer and the beneficiary; to conserve, so far as is economically possible, the present annual waste of two hundred million tons of coal; to stimulate the production of gold in order that the parity between basic and credit money may be kept at such ratio as will insure stability without restricting our circulating medium; to create conditions under which the supply of commercial minerals may meet every demand of commerce and industry; to maintain a high scale of wages, create the best possible conditions for the workman, leave a fair profit to the operator, the lowest consistent price to the consumer,—and above all, to foster a perfect co-operation between all classes interested in the mining industry. The American Mining Congress solicits the support and co-operation of all who approve these purposes.

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FEBRUARY

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DR. JAMES DOUGLAS
Honorary Member of the American Mining Congress

THE MINING CONGRESS JOURNAL

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The government of Ontario, Canada, is offering \$25,000 for the first discovery of radium in the province.

According to a bulletin recently issued by the California State Mining Bureau, there has been considerable activity in developing old gold mining properties, which have been idle. Some estimates of the amount of gold remaining buried in the ancient river channels run as high as \$1,000,000,000 dollars. It is regarded as certain that a great amount of gold can be profitably extracted by hydraulic methods.

ARIZONA'S MINE TAX BILL PASSES SENATE.

Arizona's mine taxation bill in substantially the original form as prepared by the Arizona Chapter of the American Mining Congress, has passed the State Senate and has gone to the House for action there. The vote stood 15 for to 4 against, the opposition vote exceeding by only one that of the committee which reported it to the Senate. The most important changes in the bill from its original form are an amendment providing for the assessment of producing mines idle over three months in any year at the valuation fixed by the previous year's assessment and one providing that where the average price of a product has been recorded the average price received by the producer for the ten-year period be used as a basis of the valuation of the property instead of the average selling price of the previous year.

The bill carries the emergency clause, making it operative immediately upon its passage which makes a two-thirds' vote necessary for its passage.

THE ARBITRATION OF INDUSTRIAL DISPUTES

He who attempts to settle disputes, no matter how equitable the settlement reached, is usually, if not always, the target of both sides of the controversy. It is therefore with hesitation and with a full expectation that its course will be criticised, that the MINING CONGRESS JOURNAL undertakes a discussion of the great subject, "The Arbitration of Industrial Disputes." It must be conceded from the beginning that the position of the laboring man today is better than it has ever been before in the world's history. We must also concede that organized labor has had much to do with bringing about this condition. Nor should we lose sight of the vast importance to industrial life and to the wage earner of the vast aggregations of capital which have made possible production upon an enormous scale and transportation facilities which distribute the earth's products to the remotest corners of the globe, making those things which were the luxuries of a hundred years ago the necessities of today. The large accumulations of capital which provide the facilities through which the luxuries of the world are practically made available to all and at all seasons are looked upon by some as a great menace to labor, while others believe this to be the necessary agency through which present day living is made preferable to that of one hundred years ago. If the enormous waste of time, energy and property caused by strikes could be added to the sum of wage earning and if the bitterness of strikes could be avoided surely the sum of human happiness would be greatly enhanced and the world

brought nearer to that greatly desired condition in which all shall work together for the common good.

This general question was discussed by the American Mining Congress at its Phoenix convention and a committee on arbitration, conciliation and mediation was provided, the committee being charged with the duty of fully investigating the whole situation and reporting at some future time its recommendations as to what can best be done. Of the papers presented at the Phoenix convention, one by Mr. Samuel O. Dunn, of Chicago, and one by Mr. James A. Emery, of Washington, D. C., are especially pertinent to this subject. They will be found elsewhere in this issue. Individuals in these days are not permitted to fight out their battles without becoming answerable to the criminal laws of the country. The courts are provided for the arbitration of all personal differences. Why should not the same rule apply to industrial disputes? It is easy to prescribe remedies but harder to gain common consent and approval. In a country of law and order, a country in which ultimate control rests with its citizens as expressed through the ballot box, it would seem that some satisfactory remedy might be found and if we hope to preserve representative government some better remedy must eventually be found.

The MINING CONGRESS JOURNAL opens its columns to a general discussion of this subject and invites contributions from both sides, asking only that these shall be concise, well tempered and prepared with a view of getting the contending factions together, rather than for the justification of the one or the condemnation of the other.

BETTER PRICES FOR ZINC

Better prices for zinc are here and are expected to continue for some considerable time. The closing down of the smelters of Belgium and Germany, which produced about one-half of the world's zinc supply, is responsible for the higher prices of zinc in this country.

MINING AS A BUSINESS

While it is generally believed that mining is more of a gamble than a business investment, the very reverse is true when investments are intelligently made and the risk so scattered as to secure a general average. The great mining corporations which make mining a business very seldom suffer a loss and their average is very handsome. Occasionally a failure is made, but whatever loss accrues is more than made up in other ventures in which they are successful. This being true as to the larger mining companies, there is no reason why with the same amount of intelligence and with the money handled by experienced men, men who understand the scientific conditions necessary to successful mining and who are also familiar with practical work, shall not, if sufficient capital is secured to carry on operations upon a large scale, make of the business a success equal to that which is now accomplished by the larger corporations. It is confidently asserted that the proper development of any twenty well-chosen prospects will result in the creation of one mine, the profits from which will more than offset the losses occasioned by the development of the nineteen prospects which failed to make mines. To develop any one of these prospects by itself is a very great gamble. To develop them all jointly makes the joint enterprise more safe and carries less risk than the average business investment.

No greater hazard could be imagined than the insurance of one man's life. Yet life insurance is considered a very safe business because it deals with the average of human lives rather than that of the individual. This rule applies with even greater force to mining. Even a life insurance company would fail if it paid too much in commissions for business, or made disastrous investments of its accumulated funds. Even the payment of excessive salaries might endanger its success. This illustration is given in order to show that metalliferous mining is a business which if honestly and intelligently managed is as safe as any other line of business and one which promises larger returns. If this is true,

then the agency which brings these mining opportunities to the investor has been a great benefactor to him. Upon the other hand, the development of large mining operations through which our western prospects may be developed, will be a great boon to the West, to say nothing of the benefits to commerce and industry which will follow the increased mineral production.

With proper protection to the investor, the now idle prospects in all of the western sections would be under development and all the money would be available to furnish employment for all the scientific, technical and engineering brains which is now available. The West has the opportunities and is greatly in need of capital for their development. The eastern sections are anxious for these opportunities but do not know how to find them. Is it not possible for the American Mining Congress to create agencies which will bring these interests together? A distinguished English economist once said "He who brings buyer and seller together in honest trade performs a service to both." The American Mining Congress, through the assistance of strong state chapters, hopes in this regard to render a distinct service to the West.

McALESTER MINE SAFETY STATION

In another column we present a view of the McAlester Oklahoma Bureau of Mines Safety Station, which was purchased by the Federal Government by the authority under H. R. 3988, enacted by the present session of Congress.

This station was first planned by the Oklahoma mine operators and a considerable amount of money was raised by individual subscriptions and the building erected and put in use. The cost of the building was considerably more than the local subscriptions and the foreclosure of the mortgage thereon threatened to divert it from the purpose for which it was intended. Inasmuch as its purpose was entirely of a general character a bill was introduced in Congress asking for an appropriation sufficiently large to pay the mortgage, which bill was en-

acted by the present session of Congress, making possible the continued use of this building for mine rescue work. Much credit is due Senator Swanson, of Virginia, and Congressman Carter, of Oklahoma, for bringing about the enactment of this legislation.

BUREAU OF MINES APPROPRIATIONS

The appropriations for the United States Bureau of Mines were discussed by the House of Representatives Friday, February 12, and passed as originally recommended by the appropriation committee, with the exception of the per diem traveling expenses of the United States Mine Inspector for Alaska. The Bureau practically obtains the same amount of money as the year before, which, in a way, is to the credit of the appropriation committee of Congress in view of the unusual conditions existing and the scarcity of Federal money.

The American Mining Congress had considerable to do with the creation of the Bureau of Mines and has watched with much interest its admirable work for the industry, under the efficient leadership of Dr. Joseph A. Holmes, the Director. It has also been amazed at the petty, quarrelsome attitude of certain members of Congress toward this bureau.

It has come to be expected that whenever the appropriations for the Bureau of Mines come before the house, that it will be attacked by two or three persons whose attitude toward the Bureau is known to be antagonistic.

The latest champion of this coterie of gentlemen against the Bureau of Mines is Representative Frederick H. Gillett of Massachusetts, a member of the appropriations committee. Mr. Gillett at the beginning of the hearings on the Bureau of Mines appropriations arose and presented for the attention of the members a copy of a postal card sent out by the Bureau of Mines calling the attention of interested persons to the publications being issued. Mr. Gillett had received from one of his constituents a copy of this card and he objected to the sending out of the card as "a specimen of the activity of the Bureau of Mines in ad-

vertising their wares and publications throughout the country to persons whom they think they might interest. Obviously they have a force of clerks who must be engaged in finding out the names of officials in different parts of the country engaged in business affected more or less remotely, and then they send out to them these cards, and then, I suppose, often replies come asking for the free bulletins, and then they come to us and tell us of the great demand there is for their papers and the great good they are doing to the public." He further said that this was a waste of money and that the publications were of no particular value to anyone outside of the big corporations and that the corporations knew better than the Bureau of Mines what was good for their industry.

Why Mr. Gillett should take it upon himself to bring this criticism against the Bureau of Mines, when it is a perfectly proper business procedure which is followed by every bureau of the Federal service issuing publications, it is difficult to surmise. The great Department of Agriculture has a mailing list of more than a million names and other bureaus have lists that run up into the hundreds of thousands, all of these designed to notify the interested public what the bureaus are doing, and the strange part of it all is that Mr. Gillett must know that every other bureau is doing this very same thing.

The facts are that the Bureau of Mines is a new bureau, with a live, active and hustling personnel, every member of which is endeavoring to do his best for the mining industry. In fact, certain other bureaus of the Federal service have taken lessons in the distribution of publications from the Bureau of Mines. It is not so many years ago when the Federal Government was expending millions of dollars for scientific investigations and burying the results in cellars or vaults where the publications rotted. The writer just the other day saw in a building occupied by a waste-paper dealer thousands of valuable Federal publications, some of them in their original wrappers, to be sold for waste paper at the rate of three cents a pound. These were bound copies that cost the Govern-

ment thousands of dollars. How they reached this place, the writer does not know. He was informed by the dealer that he purchased them from a person who sold second-hand books.

The Superintendent of Documents has publications that cost the Government, including the cost of investigations, millions of dollars that are condemned for waste paper because the time for using them has passed. These are some of the results of the older methods of not distributing the publications, and evidently this is the situation which Mr. Gillett would prefer.

Why Mr. Gillett should make this unwarranted attack upon the Bureau of Mines, attempting to make an objection to the Bureau doing its actual duty, is somewhat amazing. Is it that Mr. Gillett does not believe the Bureau of Mines can be of any value to his State of Massachusetts? If Mr. Gillett thinks so, he is very much mistaken for the fuel investigations of the Bureau of Mines—the telling of manufacturers and others the best kind of coal to buy to furnish the best economic results is of more importance to Massachusetts and New England than perhaps to any other part of the country.

A few years ago the Boston Chamber of Commerce appointed a committee to investigate the fuel supply of New England. Its reports showed that New England's annual fuel bill amounted to approximately one hundred millions of dollars. Of the fuel which cost this vast amount of money, not to exceed 10% was actually applied to a beneficial use.

The importance to New England's great manufacturing interests of such investigations as will increase the efficiency of coal is almost vital to her future prosperity.

The Bureau of Mines is the only national agency charged with the responsibility of making such investigations, and it would seem that New England's best interests would be served by liberal appropriations for such investigations. Again it would seem that efficiency in production would also be of interest to many sections of the country so dependent upon fuel as is New England. We do not object to the action of any con-

gressman looking to greater economy in the doing of the government's work, but we do object to having one bureau, and one of the most useful bureaus, singled out as the object of criticism.

While taken as a whole, the Bureau of Mines has not suffered much in a monetary way, the MINING CONGRESS JOURNAL cannot quite understand the animus of these gentlemen who are continuously harassing the very excellent and efficient Bureau of Mines. This new bureau is doing a wonderful and effective work both for safety and in the interests of the men who use fuel. Its work has won the praise of the men in all walks of life. Whether it is Dr. R. W. Raymond, internationally known to everyone in the mining engineering profession, who said: "At all events, this has been the case of the Bureau of Mines, the admirable work of which has won the praise of the world," or whether you take a mine worker writing in the *Mine Workers' Journal* of February 11, 1915, who says: "The Bureau of Mines has been a godsend to this country," the commendation ranges all the way from a man of the caliber of Dr. Raymond to the miner who scribbles his thanks to the Bureau on a torn piece of foolcap paper. The American Mining Congress knows that the Bureau of Mines is doing a splendid work for the mining industry. It believes in the Bureau of Mines and it does not understand petty and vicious attacks that are being made from time to time by those who ought to know better.

It would be fair to state in passing that the attacks upon the Bureau of Mines brought forth much commendation for the work from such men as Mr. Mondell, of Wyoming, Mr. Borland, of Missouri, Mr. Austin, of Tennessee, Mr. Stevens, of Texas, and Mr. Hulings, of Pennsylvania and many other able members of the House were ready to champion and approve the work of the Bureau.

APPROPRIATIONS FOR BUREAU OF MINES

The sundry civil bill for the fiscal year 1916, has passed the House. The bill carries an increase of \$12,300 over the

total appropriations for the Bureau of Mines for the current fiscal year. The increase is made up as follows: for removing the Pittsburgh station to the new buildings \$57,300; petroleum and natural gas investigations \$10,000; equipment and extension of Birmingham rescue station \$3,000; repairs to McAlester station \$500; clerk for the mine inspector of Alaska \$1,500.

The provision regarding the detail of employees to Washington, has been amended so as to authorize the payment of per diem to employees called to Washington for purposes of consultation only, during their stay in the city.

The bill also appropriates \$350,000 to complete the new laboratories of the Bureau at Pittsburgh; \$25,000 for the completion of the postoffice and mine rescue station at Norton, Va., and \$30,000 for the completion of the postoffice and mine rescue station at Jellico, Tenn., and \$1,500,000 for the completion of a new Interior Department building at Washington, to be occupied by the Geological Survey, the Bureau of Mines, and the Reclamation service.

THE FOSTER BILL

The passage of the Foster Bill by the House of Representatives marks another long step in the progress of the Western effort to secure Federal cooperation in the better development of the metal mining industry.

In 1896 The American Mining Congress was organized at Denver for the particular purpose of securing Federal cooperation, its demand at that time being for a Department of Mines, with its chief a member of the President's Cabinet. After many years of fruitless effort it was decided to temporarily relinquish the effort for the creation of a Department, and ask Congress to create a Bureau of Mines. The original effort in this behalf was entirely for the benefit of the metal miners of the West. In 1907, was begun a determined effort, which resulted in the enactment of the first Bureau of Mines act in 1910. This act made practically no provision for the metal mining interests, having been so amended in the committee as to provide only for the mat-

ters of interest to coal mining. Immediately thereafter was introduced a new bill, which was finally approved February 25, 1913, which bill authorized the Bureau to undertake such work as the appropriation provided for. The first appropriation of \$50,000 for Western work was secured in 1912. For the years 1913 and 1914 this appropriation was increased to \$100,000. These appropriations were made to cover both the work looking to safety in the mines and metallurgical research work. Under these appropriations, stations have been established at Denver, Salt Lake, Seattle and San Francisco. Scientific investigations of the intricate problems presented by the mining industry are necessarily slow in coming to fruition, but valuable work has been done, the most important results having been achieved in the abatement of the so-called smoke nuisance and in cheaper methods for the reduction of radium bearing ores.

The appropriation of \$100,000 for continuing this work during the coming year has just been approved by the House and will undoubtedly become effective.

The Foster Bill, more fully described in the January issue of the *MINING CONGRESS JOURNAL*, adds largely to the facilities of the Bureau of Mines in this behalf, and enables it to cooperate with the states in such a way as to add very greatly to the usefulness of this work. The Foster bill is now on the Senate calendar for third reading, with a bare possibility of its being enacted at the present session. However the time is so short and the amount of business necessary to be transacted so large as to make very doubtful the consideration of the bill by the Senate during the present session. In case the bill shall fail, it is planned to re-introduce it in both Houses at the opening of its next session and it is hoped that those interested and who so greatly need its service provided for by this bill, will continue with increased vigor to urge its enactment.

STATE AID TO MINING DEVELOPMENT

A very interesting suggestion, and one entitled to very careful consideration, is

made in a letter from Mr. J. H. Mulholland, president of the Monarch Mining & Smelting Company, of Wickenburg, Ariz. As a part of a discussion on the question of mine taxation, Mr. Mulholland says:

"A producing mine is depleting a natural resource. I cannot take out a crop of ore, as I can a crop of wheat, and produce another crop to take its place next year. What I have mined this year, and milled, and disposed of, is just that much less value that my property contains. I believe that the State is entitled to a share of the net proceeds of my operation, not as a tax in the accepted sense, but as a royalty, a participation in the proceeds derived from the depletion of a natural resource. Further, I believe that this royalty or participation tax should be treated separately by the State, and that a very considerable proportion of it should be set aside for the purpose of aiding the mining industry in that State—studying it geologically, mapping it thoroughly, providing a State laboratory for the free assaying of prospectors' findings, providing a staff of salaried geologists and mining engineers, whose advice would be available without cost except perhaps for traveling expenses to any prospector or miner in the development of his property, and generally gathering comprehensive, authoritative data concerning the mineral resources of the entire State, which would enable a man looking for a particular mineral to get advice as to the best locality to prospect. This may sound mighty radical to you, but let me give you some reasons.

"We have been complaining about the difficulty encountered in interesting capital in our mining enterprises. Suppose you are a prospector with a property that you need funds to develop. Suppose that that you could carry with you to your coy capitalist, a State map on a large scale of your district showing its topography, known mineralization, known water supply, and geological data. In addition, a written advice from a State mining engineer as to his suggestions regarding further development, the assays from the State laboratory, and the knowledge that this engineer is available from

time to time for further advice and assistance. Don't you think that would take part of the gamble element out of your proposition in his eyes?

"Why shouldn't we have salaried State mining engineers? In the State of North Dakota, the bankers got together and guaranteed a fund of, I think, \$100,000 each year for three years, if I remember correctly, to pay half the salaries of agricultural experts, one for each county in the State, the farmers in the counties to provide the balance of the salaries. Their aim was to raise the land values in North Dakota to \$100 per acre. (These details may not be exactly accurate, as it is some time since I was told about it, but the secretary of the State Bankers' Association can inform you.) If it pays the farmers in North Dakota to have a county agricultural adviser, would it not pay for us in Arizona or in any other mining State, to have a staff of fifteen mining engineers, one for each county, at a cost of about \$3,000 per annum per man? Think of the value it would be to the ordinary horny-handed prospector to be able, for \$10 or \$20 expense, or better still for nothing whatever, to secure trained advice as to the development of his claims."

A prospectors' school opened February 8 at the Colorado School of Mines in Golden with thirty-eight pupils in attendance. The ages of those enrolled for the course range from seventeen to seventy-six.

CENTRAL WEST VIRGINIA COAL OPERATORS' ASSOCIATION

A short time ago the coal operators of the central counties of West Virginia met at Fairmont and organized what they have christened the Central West Virginia Coal Operators' Association, the

organization starting off with a membership that represents forty-three companies and fourteen counties. Now note what its purposes are:

"To conserve coal properties by improved methods of production; to provide the best, the safest and the most efficient means of mining coal and safeguarding employes engaged in mining and handling the product."

The officers are "Uncle" Dan Howard, of Clarksburg, president; vice-president, Cletus H. Jenkins, Fairmont; secretary, A. Lile White, Clarksburg; treasurer, C. J. Ryan, Hephsebah. In addition to these executives, the following are directors, as representing counties: Harrison and Lewis, A. Lesserang and J. Edgar Lang; Marion, George Thomas Watson and Rolfe M. Hite; Mineral and Grant, J. G. Boyd; Tucker, C. W. Callo-way; Gilmer, Randolph and Braxton, R. B. Isner; Upshur, Taylor and Barbour, Lee Sandridge; Monongalia and Preston, T. W. Borgaman and Davis Elkins. Headquarters will probably be in Clarksburg.

DELAWARE PRODUCED IRON

In colonial times and during the early years of national life Delaware was of considerable relative importance as a producer of iron ore for bloomeries and forges, but with the rise of the blast furnaces and the disappearance of the bloomeries Delaware's iron-mining industry ceased to exist, and no iron ore has been produced in the state for many years. The principal mineral products of Delaware now are obtained from quarries, sand and gravel pits, and springs of potable water. The value of the total mineral production increased, according to the United States Geological Survey, from \$125,360 in 1912 to \$511,542 in 1913.

THE EASTERN OHIO COAL MINING SITUATION

The situation in the eastern Ohio coal field was greatly increased in seriousness by the refusal of the Mine Workers' organization officials to submit the questions under dispute to arbitration. For some time past the Federal Conciliation Board, consisting of Hywel Davies and Daniel J. Keefe, has been making an effort to bring about a settlement in this field. After many propositions of various kinds the final offer of the operators was submitted as follows:

Cleveland, Ohio, February 9, 1915.—To D. J. Keefe and Hywel Davies, Federal Commissioners of Mediation:

Gentlemen:—In accordance with the understanding had at the adjournment last Wednesday, that three names be submitted by the operators of eastern Ohio to constitute part of an arbitration board to decide the matters in dispute which have resulted in the past ten months' strike in the mines of eastern Ohio, we have selected and herewith submit the names of Charles E. Maurer, S. H. Robbins and George M. Jones.

These names are submitted with the understanding that they, together with three members selected by the miners, shall choose three disinterested members, who, together with the six members above named, shall constitute a complete arbitration board of nine members, and that the decision of this board shall be final and binding on both operators and miners.

In the event the members selected by the operators and miners are unable to agree on the election of three disinterested members within three days from date, then we agree that said disinterested members shall be appointed by the President of the United States. (Signed) The Pittsburgh Vein Operators of Ohio.

The refusal of the Mine Workers officials to name members of such arbitration board and their determination not to submit the questions in dispute to arbitration brought to an end all hope of an early settlement of this controversy.

The district involved embraces Belmont, Jefferson and Henderson Counties in Ohio. The coal mined is geologically classified as "Pittsburgh coal"; because the Pittsburgh seam crosses under the Ohio river from West Virginia

to Ohio. It is a good coal, high in heat-unit quality, but less easy to mine and possessed of a little more impurity than the coal mined from the same seam in Allegheny, Washington and Greene counties in Pennsylvania, and Hancock, Brooke and Ohio counties in West Virginia. It is highly esteemed as a railroad locomotive fuel, and much of the output of Eastern Ohio is used for this purpose, a considerable quantity of it being shipped to Canada and the Northwest via the Lakes for railroad use. It does not make a serviceable coke, as coal from the Pittsburgh seam in certain restricted localities does, hence the coal is sold for raw fueling uses solely.

In the joint wage conferences of the miners and operators at Philadelphia in 1914 no agreement was reached. There was, accordingly, a "suspension" in the miners' nomenclature, which means that while there was no strike the joint wage agreement had expired by limitation, and the men refused to work unless assured that the wage rate demanded would be paid. In the Pittsburgh district, the rate in which is basic as to all others in the United States on differential parities, the operators and district officials of the miners early came to an understanding, and work was resumed. This acted as a sedative to industry, because it assured a coal supply, no matter what might happen in Ohio, Indiana and Illinois, the other three States which are jointly interested in what is known as the Interstate Joint Wage Agreement.

Illinois operators, with whom are closely associated those in Indiana, had some re-adjustments upon which they insisted, so that there was a lapse of several weeks in those two States and Ohio before a wage agreement was reached. Ohio, as a State, held out for several weeks, and the "suspension" developed into what is known as a "strike." After several conferences the operators of the Hocking and some other districts

in Ohio came to terms on a compromise; those of Eastern Ohio held out, saying that they could not pay the rate demanded, which was for all coal mined as it came to the tippie before screening, the wage rate heretofore having been for all coal that passed over a screen with bars $1\frac{1}{4}$ inches apart and having a stipulated superficial area. The operators declared that the figures insisted upon by the miners' organization was virtually an increase of rates as compared with the basic rate in the Pittsburgh district. Moreover, in Ohio there had been enacted a law, at the instance of Senator William Green, now secretary-treasurer of the United Mine Workers of America, which imposed a heavy penalty upon coal-mine operators who failed to pay their miners for all the coal sent out by them to the tippie. This law, known as the Green mine-run act, also made null and void any private agreement on the part of operators and miners to set aside its arbitrary provisions. This point was contested, and the Supreme Court of the State adjudged it constitutional; this has just been affirmed by the Supreme Court of the United States on appeal.

The objection of the Eastern Ohio operators to complying with the terms of this Green act is that under its operation the miners would multiply dangers in their mines by blasting the coal down with excessive charges of powder; that this practice would also greatly depreciate the salability of their product, as it would be so shattered that it would disintegrate on exposure to the air and elements; that it would stand transit less effectively; that it would result in obtaining a large percentage of the product that would be unsalable, or salable only at an unremunerative price, therefore at a loss to them. These allegations seem, from many tests and experiences of many old operators, to have been well established as to verity.

The operators have made several alternative propositions to the miners' officials, in no case asking that the men accept any less remuneration than the equivalent of the rates paid in the Pittsburgh district, which they have, from long established custom, been paying. They assert that their motive is to

preserve their coal in the hill, to make that brought out salable at the best possible price; that this price is determined by the price at which operators of neighboring districts sell their coal; that a workmen's compensation law imposes upon them new obligations for safety and remuneration for accidents and fatalities; and that, therefore, they must take every precaution to secure a high-class of product and the maximum of safety in the operation of their mines by making it a condition of their employment that the men shall observe safety precaution; that by excessive blasting the coal down this cannot be secured.

The mines have been idle since March 31, 1914. The operators have been as sorely pressed as have been their workmen and their families; but the latter have been assisted by the working members of the United Mine Workers of America and of the labor unions of the country, the Socialists and by individuals. They have suffered, no doubt; but what of the operators? Their money has been invested and it has brought no return; in fact, idleness has been a source of expense, for mines that make water must be pumped; idle mines must be patrolled to safe-guard against fire and falls of roof and sides. Incomes to meet this expense have been cut off, so that the operators have suffered about as much as the workmen.

What is the solution for such a situation? Mines cannot be operated without machinery as well as men. Mines cannot be opened and maintained without the investment of large sums of capital. Shall capital not have its wage as well as labor? Is it not a situation that calls for lawful control?

Thinking men are seriously considering these questions.

The MINING CONGRESS JOURNAL will welcome a discussion of this general subject.

Over forty mineral substances are found in California. The total value of the output of these for the last year is expected to total nearly one hundred million dollars.

RADIUM AT THE CAPITAL

NOTABLE EXHIBIT OF PRECIOUS MINERAL RESULT OF COOPERATIVE WORK OF DOCTORS DOUGLAS AND KELLY AND U. S. BUREAU OF MINES—INCREASED PRODUCTION—COST LOWERED

On January 27, amid the applause of his colleagues, Congressman Martin D. Foster, of Illinois, exhibited in the United States House of Representatives two small tubes containing in all \$11,000 worth of radium, the first fruits of the work of the United States Bureau of Mines in that branch of research in co-operation with the National Radium Institute, made up of Drs. James Douglas and H. A. Kelly. Representative Foster, in addressing the House, said:

"Mr. Speaker, a year or two ago there was organized the National Radium Institute. Dr. Howard Kelly, of Baltimore, was elected president, and is still president of the institute. Leases were obtained on carnotite mines in Colorado, from which they are to take out 1,000 tons of ore, and the radium is to be extracted under the supervision of the Bureau of Mines.

"Some time ago it was said before the Committee on Mines and Mining by certain gentlemen who were interested in the business of extracting radium from the ore that the government would never be able to succeed in its undertaking; that they had no process known for extracting radium that they would be able to demonstrate was successful.

"I am pleased today to say to the members of the House that under the process which has been put into operation by the Bureau of Mines they have been able to extract the radium from the ore, and I have a letter from Dr. Kelly, president of the National Radium Institute, to Secretary Lane, in which he says:"

Washington, D. C., January 27, 1915.
The Honorable the Secretary of the Interior,
Washington, D. C.

My dear Mr. Secretary: I herewith gratefully acknowledge, in behalf of the Radium Institute, the receipt from the Director of the Bureau of Mines of 171 milligrams of hydrous radium bromide, to be applied by the institute to purposes before planned.

It gives me the greatest pleasure in ac-

knowledging this receipt, and in thus realizing the fruition of our hopes to thank the bureau for the extraordinary success of its labors in thus producing radium by simplified methods to be used for the public good, the entire process being developed in a plant both planned and operated by the government, under the direction of Dr. C. L. Parsons, of the Bureau of Mines.

This radium will at once be put into solution and begin its course of beneficent activity in the service of suffering humanity.

With the radium already in our hands, the successful treatment of many conditions has been established beyond peradventure. Many of these cases have been utterly beyond the reach of surgery or other therapeutic measures. We have, however, felt throughout the past months the inadequacy of our supplies to meet the urgent needs in individual cases. We feel, therefore, an entire confidence that the supply now accumulating and heralded by this delivery will enable us to treat successfully conditions up to this time beyond our reach.

Very sincerely yours,

HOWARD A. KELLY,
President of the National Radium Institute.

Continuing, Congressman Foster said:

"I might say further that by the end of the year 1915 it is confidently expected by the Bureau of Mines that they will be able to supervise the extraction of seven grams of radium, which Dr. Kelly and Dr. Douglas desire, and then the government will secure its share of the profit in radium which comes from the operation of this plant in Denver, Colorado.

"So I congratulate the country upon the fact that the government has been able to do this work. Especially are we gratified at this time, when we read of so many human lives being sacrificed in war, that there are men like Dr. Kelly and Dr. Douglas who are willing to give from their private funds \$75,000 each and who have lately removed that limit and are willing to furnish more that they may secure this radium for the benefit of humanity and to save human life. I cannot too strongly commend the work of these men for the benefit of those who

suffer from disease. And I am glad to come to the House today and bring with me this small amount of radium, though it represents a value of \$11,000 of this rare metal. I hope that a sufficient quantity of it will be obtained so that it may be placed in the hospitals of our country, where human life may be saved and where those who are afflicted may be saved, and that we may have other ways of curing these diseases without resorting to a surgical operation and which in other cases can not be done. In this little tube which I hold in my hand there is \$5,000 worth of this precious metal; and in the other tube there is \$6,000 worth."

Of scarcely less historic interest was the presentation at an earlier hour on the same day of the 171 milligrams of radium bromide to Dr. Kelly, of the National Radium Institute, whose letter of acknowledgment was read by Representative Foster on the floor of the House.

The presentation of the 'precious substance, made possible through the beneficence of Dr. James Douglas of New York, and Dr. Howard A. Kelly, of the Johns Hopkins University Hospital, of Baltimore, was made by Assistant Director Van H. Manning at a luncheon at the Washington office of the Federal Bureau of Mines. Secretary Lane, of the Interior Department, Representative Foster, Dr. Kelly, Dr. C. L. Parsons and Assistant Director Manning made addresses.

Secretary Lane extended congratulations on there having been achieved something which had been declared impossible—the production of radium from American ores in America by original methods, entirely independent of those

employed and so zealously guarded abroad. He expressed the hope that Congress would take favorable action on the bill designed to develop the radium industry in this country.

Dr. Kelly declared that the successful treatment of many cancerous growths by the use of radium had been estab-



HON. M. D. FOSTER

Chairman Mines and Mining Committee, House of Representatives

lished beyond question. The inadequacy of the supply, which had prevented use in many urgent cases he believed would now be remedied as the result of the government becoming a steady producer of the mineral.

Dr. Parsons stated that the present consignment of radium had been refined within nine months of the beginning of

operations and predicted that the seven grams it was originally planned to produce within the first three years' work would be available in one third that time.

The National Radium Institute was organized about two years ago by Doctors Douglas and Kelly for the purpose of leasing or purchasing carnotite ore bearing lands in Colorado and to build



IN THE CARNOTITE COUNTRY, PARADOX VALLEY, COLORADO

and operate a plant for the purpose of refining radium. The money necessary to build the plant and to pay for mining the ores and operating the mill was furnished by Messrs. Douglas and Kelly, the U. S. Bureau of Mines supplying the expert service under the leadership of Dr. C. L. Parsons, who has been in charge of the operation of the work.

The radium presented Dr. Kelly will be used in hospital work, the arrangement with Doctors Douglas and Kelly being that a supply up to a certain amount

shall go to them for hospital services, after which all produced shall be the property of the United States.

The operations of the National Radium Institute, under the supervision of the Federal Bureau of Mines, were conducted at Long Park, near Paradox Valley, in Montrose County, Colorado, and in Denver. As one of the results of the work and the investigation of processes Director Holmes has announced the probable production of radium at one-third of its present cost. Messrs. Lind and Whittemore, of the Bureau of Mines, state that their investigations show that carnotite carries proportionately to its content of uranium as much radium as pitchblende or other uranium minerals—that is, the radium has reached its maximum ratio to the uranium from which it is derived and is thus in equilibrium. From published results of experiments made on casual specimens of carnotite it had been popularly supposed that carnotite was less rich than pitchblende in radium.

Figures given out by the United States Geological Survey show 1914 to have been a record year in the production of radium, uranium and vanadium ores in this country. The output amounted to about 4,300 short tons of dry ore carrying 87 tons of uranium oxide and 22.4 grams of metallic radium. The ore was valued at about \$445,000. The ore produced in 1913 contained 41 tons of uranium oxide and 10.5 grams of radium, and that produced in 1912 contained 26 tons of uranium oxide and 6.7 grams of radium. About nine-tenths of the contained radium is thought to be recoverable under improved processes.

In Utah the Standard Chemical Co. made the first commercial production of carnotite ores from the Henry Mountains during the year, and the commercial production of uvanite, a radium-bearing mineral new to science, accompanied by other uranium minerals, was begun at Temple Rock, forty-five miles southwest of Green River. Shipments were made from newly opened carnotite deposits at Court House, northwest of Moab, Utah, and from deposits sixteen or eighteen miles southeast of Moab. A first ship-

ment was also made from Blue Mountain, Routt County, Colo.

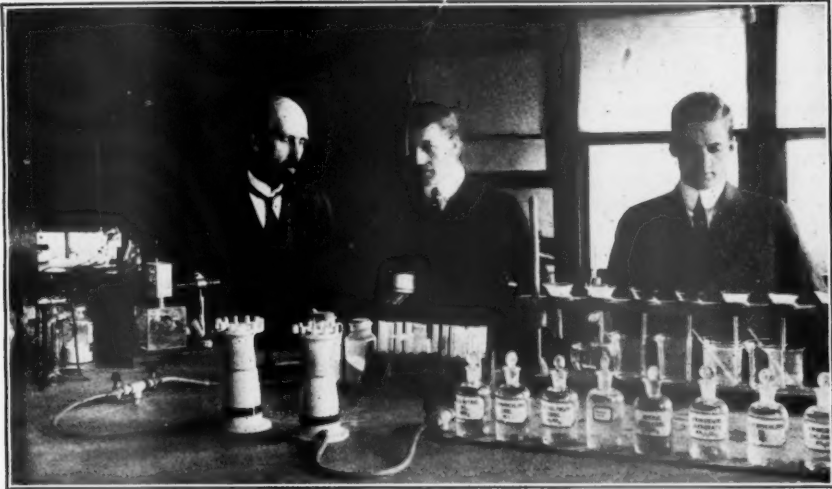
The Paradox Valley region was, however, as usual the chief producing area, and from it came the bulk of the ores. The Standard Chemical Co. was the largest single producer and shipped more than half of the country's output.

Two companies, the Standard Chemical Co. and the Radium Co. of America,

MICHIGAN'S COLLEGE OF MINES

The Michigan State legislature is asked for an appropriation of \$154,780 for maintenance and special purposes in connection with the Michigan College of Mines for this year.

Prof. E. D. Grant, extension lecturer for the Michigan College of Mines, has been making a three-weeks lecturing tour of the State.



LABORATORY OF THE DENVER STATION OF THE U. S. BUREAU OF MINES WHERE THE RADIUM PROCESS IS BEING WORKED OUT

Left to right.—Dr. R. B. Moore, Karl Kithill and C. F. Whittemore.

produced radium salts during the year, and Dr. W. A. Schlesinger started a radium-refining laboratory. The opening of the European war stopped nearly all operations in both mines and reduction plants, for the two companies mentioned sold their product largely in Europe and practically all the ore bought by brokers was sold abroad. A little more than 1,200 tons of ore, containing 28.1 tons of uranium oxide and 7.2 grams of radium, was consigned to Europe, but as the foreign refineries were closed, a part of it was held in transit.

MINE BUREAU CHIEF UPHELD

Judge McCarrill, in the Dauphin County Court, has made absolute the rule dismissing the case brought by James Matthews, president of the Ninth District of the United Mine Workers of America against James E. Roderick, chief of the Pennsylvania Bureau of Mines. The suit was brought to restrain the chief from issuing mine foreman certificates to a number of applicants who had not worked for five years at the face of a mine.

A NOVEL METHOD OF CONSERVATION

The State of Oklahoma has recently enacted a law designed to so control the production of oil within the state as to prevent waste. A similar law, looking to the control of gas production, is now under consideration by the Legislature. This experiment will be watched with careful interest by the advocates of the theory that coal, being a source of power, is so charged with the public use as to be amenable to state control. There is, however, a wide difference emphasized by the rule laid down by the courts, to the effect that oil and gas must be recovered from the ground and reduced to physical possession, before it becomes the property of the surface owner, or lease-holder. Then again, an oil or gas well will take from the ground all of the oil or gas within a considerable distance from the well without reference to the boundary lines of the owner. This leads to the drilling of wells near the boundaries of any property, with a view to securing as much as possible of the oil taken from the land of the adjoining owners, perhaps stimulated by David Harum's construction of the Golden Rule, "Do unto the other fellow as he would do to you, and do it fust."

These physical conditions compel the owner of property adjoining a property upon which a successful well has been brought in to drill off-set wells if he is to prevent the first well from exhausting the oil from his own property.

This situation in Oklahoma has lead to a very great over-production of oil and a startling over-production and waste in gas. It has been estimated that in the Cushing field alone gas has been wasted at the rate of 200,000,000 cubic feet daily, and that during the last year the pressure has been reduced from 600 pounds to 200 pounds. This waste of 200,000,000 cubic feet daily is estimated to equal the value of 10,000 tons of coal.

The production of oil in excess of the present market demand entails the cost

of storage and the loss by evaporation. The cost of storage of oil is about twenty-five cents per barrel, while the loss by evaporation approximates ten per cent during the first year. These losses, added to the losses by fire of oil in storage, approximate to \$10,000,000 during the past year. The cost of storage is so great that the small independent producer is frequently unable to meet this expense, and in consequence is forced either to allow the neighboring operators to take the oil from under his land, or else to produce it and dispose of it at any price which is offered. It is alleged that this condition of over-production enables the pipe-line companies and allied refining interests to increase their profits at both ends. This process has been repeated until it is evident that over-production benefits nobody, save the combined transportation and refining interests.

Upon this point a brief prepared by the independent producers of Oklahoma, in support of this bill, presents the following statement:

The price of oil is cut for the following alleged reasons:—First, in order to pay for the costs incident to this field storage, and Second, to stop the drill and thereby prevent new production. When the prizes are reduced, the cut is not only sufficient to pay the cost of such storage, but also affords a large margin of profit on the oil purchased not alone in this particular field, but elsewhere in the state and country.

The net result is to give a large balance in favor of the marketing companies at the expense of the producer. For example, in the eight months succeeding the cut in the price of Cushing oil from \$1.05 to 75c, and then to 55c per barrel, some sixty million barrels of oil have been produced in this State. Of this amount some eighteen million barrels is reported to have been put in storage in the Cushing field. A gross cut of 50c per barrel on the oil thus put in storage, would amount to \$9,000,000, which sum is about sufficient to cover the cost of such storage, and the probable evaporation losses of the lighter and more valuable constituents. This cut in price, however, is more far-reaching than this, since it also affects

the forty-two million barrels of oil which have been run to market by the pipe line companies, and represents a net profit to them, over and above the cost of the storage and all expenses in connection therewith, of more than \$15,000,000. This amount has been taken from the producers in this field alone, without any resulting benefits to the public at large, to the State, or to any interest save the marketing companies.

This does not represent the total profits of the marketing companies, however, since the general cut in price throughout the country, following the condition of over-production in the Cushing field has netted them at a conservative estimate, not less than \$50,000,000 in the past eight months.

The bill as enacted, controlling the production of oil in Oklahoma, will be found on another page of this issue. A similar bill, designed to control the waste in gas, has been introduced in both Houses of the Oklahoma Legislature, has been favorably reported by the committees in both Houses, and seems likely to be enacted during the present session of the Legislature.

OREGON'S 1914 MINE YIELD

Oregon's metal production for 1914, according to United States Geological Survey estimates, shows decreases generally from the figures for 1913. The gold yield for 1914 was about \$1,600,000 against \$1,627,710 in 1913. The estimated production of silver for 1914 was 126,000 fine ounces and the output for 1913 was 179,063 fine ounces.

There are about 175 producing mines in Oregon, of which 125 are placers. Most of the placer mines are run on a small scale and two-thirds of them are hydraulic mines. The largest production of gold from deep and placer mines comes from Baker County, which yields about eighty-four per cent of the total gold of the State.

COLORADO MINES ACTIVE

Mining machine dealers in Denver report the sales of machinery during the new year this far unprecedented. A large number of new and rich strikes have been made during the past several

months in Colorado. Among the counties reporting good finds are: Teller, gold; Lake, gold and zinc; Chaffee, gold, silver and copper; Custer, copper and gold; La Plata, gold; Gunnison, silver and gold; Saguache, gold; Moffat, carnotite or radium-bearing ore; Boulder, gold, and Clear Creek, molybdenum.

PLATINUM IMPORTS REDUCED

The importation of platinum, affected by the European War, is a matter of decided concern to the dental profession. Platinum is very necessary in the placing in position of artificial teeth.

The very largest part of the world's supply of this precious metal comes from Russia. The supply from that country has for several years been lessening owing to the fact that the ore mined is less rich than that taken out in the past. South America and several other countries yield a small amount of platinum. Last year in this country 701 ounces of refined platinum were produced from deposits in California, Oregon and Washington. In the same period of time 300,000 ounces were imported from Russia. It can readily be seen, therefore, that our production of this very valuable white metal is practically negligible.

The pins which fasten artificial teeth in place are made of platinum. No other metal is satisfactory for this purpose. Gold cannot be heated to the welding point and other metals oxidize or are affected by the acidity of the mouth. Dentists have for a number of years been seeking a satisfactory substitute in a composition metal. A number of such substitutes are on the market, but all are said to be lacking in some of the requisites.

UNITED STATES TOTAL GOLD PRODUCTION

The total gold production in the United States from 1792 to January 1, 1914, is estimated by the United States Geological Survey at \$3,549,799,400; the value of the country's silver yield for the same period is given at \$1,709,517,600.

OKLAHOMA'S OIL CONSERVATION LAW

An act defining and prohibiting waste of crude oil or petroleum, providing for the equitable taking of the same from the ground, conferring authority on the Corporation Commission, prescribing a penalty for the violation of this act and declaring an emergency.

Section 1. That the production of crude oil or petroleum in the State of Oklahoma, in such manner and under such conditions as to constitute waste, is hereby prohibited.

Sec. 2. That the taking of crude oil or petroleum from any oil-bearing sand or sands in the state of Oklahoma, at a time when there is no market demand therefore at the well at a price equivalent to the actual value of such crude oil or petroleum is hereby prohibited, and the actual value of such crude oil or petroleum at any time shall be the average value, as near as may be ascertained, in the United States at retail of the by-products of such crude oil or petroleum, when refined, less the cost, and a reasonable profit in the business of transporting, refining and marketing the same, and the Corporation Commission of this State is hereby invested with the authority and power to investigate and determine, from time to time, the actual cash value of such crude oil or petroleum by the standard herein provided, and when so determined said commission shall promulgate its findings, by its orders duly made and recorded, and publish the same in some newspaper of general circulation in the state.

Sec. 3. That the term "waste" as used herein, in addition to its ordinary meaning, shall include economic waste, underground waste, surface waste, and waste incident to the production of crude oil or petroleum in excess of transportation or marketing facilities or reasonable market demands. The Corporation Commission shall have authority to make rules and regulations for the prevention of such wastes, and for the protection of all freshwater strata, and oil and gas-bearing strata, in any well drilled for oil.

Sec. 4. That whenever the full production from any common source of supply of crude oil or petroleum in this State can only be obtained under conditions constituting waste, herein defined, then any person, firm or corporation, having the right to drill and produce oil from such common source of supply, may take therefrom only such proportion of all crude oil and petroleum that may be produced therefrom, without waste, as the production of the well or wells of any such person, firm or corporation bears to the total

production of such common source of supply. The Corporation Commission is authorized to so regulate the taking of crude oil or petroleum from any or all such common sources of supply, within the State of Oklahoma, as to prevent the inequitable or unfair taking, from a common source of supply, of such crude oil or petroleum, by any person, firm or corporation, and to prevent unreasonable discrimination in favor of any such common source of supply as against another.

Sec. 5. That for the purpose of determining such production, a gauge of each well shall be taken under rules and regulations to be prescribed by the Corporation Commission, and said commission is authorized and directed to make and promulgate, by proper order, such other rules and regulations and to employ or appoint such agents with the consent of the Governor, as may be necessary to enforce this act.

Sec. 6. That any person, firm or corporation, or the Attorney General, on behalf of the State, may institute proceedings before the Corporation Commission, or apply for a hearing before said commission, upon any question relating to the enforcement of this act, and jurisdiction is hereby conferred upon said commission to hear and determine the same. Said commission shall set a time and place when and where such hearing shall be had and give reasonable notice thereof to all persons or classes interested therein by publication in some newspaper, or newspapers, having general circulation in the State, and in addition thereto, shall cause reasonable notice in writing to be served personally on any person, firm or corporation complained against. In the exercise and enforcement of such jurisdiction, said commission is authorized to determine any question of fact arising hereunder, and to summon witnesses, make ancillary orders, and use such means and final process including inspection and punishment as for contempt analogous to proceedings under its control over public-service corporations as now provided by law.

Sec. 7. That appellate jurisdiction is hereby conferred upon the Supreme Court in this State to review the action of said commission in making any order, or orders, under this act. Such appeal may be taken by any person, firm or corporation, shown by the record to be interested therein, in the same manner and time as appeals are allowed by law from other orders of the Corporation Commission. Said orders, so appealed from, shall not be superseded by the mere fact of such appeal being taken, but shall be and remain in full force and effect until legally suspended or set aside by the Supreme Court.

Sec. 8. That in addition to any penalty that may be imposed by the Corporation Commission for contempt, any person, firm or corporation, or any officer, agent or employee thereof, directly or indirectly violating the provisions of this act, shall be guilty of a misdemeanor, and upon conviction thereof, in a court of competent jurisdiction, shall be punished by a fine in any sum not to exceed \$5,000, or by imprisonment in the county jail not to exceed 30 days, or by both such fine and imprisonment.

Sec. 9. That in addition to any penalty imposed under the preceding section, any person, firm or corporation violating the provisions of this act shall be subject to have his or its producing property placed in the hands of a receiver by a court of competent jurisdiction, at the suit of the State through the Attorney General, or any County Attorney, but such receivership shall only extend to the operating of producing wells and the marketing of the production thereof, under the provisions of this act.

Sec. 10. That the invalidity of any section, subdivision, clause or sentence of this act shall not in any manner affect the validity of the remaining portion thereof.

Sec. 11. That for the immediate preservation of the public peace, health and safety, an emergency is hereby declared to exist by reason whereof this act shall take effect and be in force from and after its passage and approval.

WORLD'S GOLD PRODUCTION

The world's output of gold for 1914, based on figures and estimates obtained thus far, was \$450,491,800, falling short of the total for 1913 by \$9,802,800. The United States with a yield of \$96,266,800 showed an increase of \$4,116,400, going a good ways toward offsetting the falling off in Africa's return, which was \$200,750,000 as against \$205,875,000 in 1913. Australasia produced \$55,450,000, registering a loss of \$3,775,000 from the preceding year's yield. Canada showed a gain, producing \$17,650,000 in 1914 and \$15,965,000 in 1913. Mexico's production was \$17,750,000 in 1914, being \$500,000 under the figures for 1913. Russia produced \$21,500,000; her yield in 1913 was \$23,275,150. India produced \$10,425,000 in the yellow metal in 1914 and \$12,450,000 the year preceding. South America increased her yield from \$10,325,000 to \$10,550,000. Japan's yield was \$3,225,000 in 1914 and \$4,075,000 in 1913.

PROHIBITION BENEFITS MINERS

Very satisfactory reports regarding the moral and beneficial effects of prohibition in the mining towns of West Virginia, as well as in the other sections of the state, are being received from that commonwealth. A considerable number of miners have already started savings accounts, while many others who were always behind at the company's stores have balances due them each month. Their families are better cared for and an increased efficiency on the part of these workmen has been noted. More time is being spent at home or in surroundings more favorable than that of the saloon.

Court records show a decrease in lawlessness in towns and cities, and on a number of the branch railroad lines, where in some cases under old conditions it was considered unsafe for a woman to travel alone. More time is being spent in self-improvement by those who were formerly in the habit of whiling away their hours in a saloon. Of course West Virginia possesses thousands of workmen who were in the sober class before the passage of the law, and to none, perhaps, is the law more welcome since it means for them a better citizenship. The improved conditions brought about by the effects of prohibition will attract many more such as themselves, while the less desirable, through the enforced removal of temptation, have removed or have changed, in a degree, at least, their old style of living.

Recently a number of coal miners came to West Virginia from Illinois because the state was dry and offered better opportunities and more desirable surroundings.

RICHARDS RECEIVES MEDAL

Robert Hallowell Richards, professor of mining engineering and metallurgy of the Massachusetts Institute of Technology, Boston, Mass., has been awarded the gold medal of the Mining and Metallurgical Society of America for 1915, in recognition of his services in the advancement of the art of ore-dressing.

SAFETY FIRST

COOPERATION AND UNDERSTANDING ESSENTIAL—THE RESPONSIBILITY OF THE INDIVIDUAL—PROBLEMS TO BE SOLVED AND OBSTACLES TO BE REMOVED

The wide-spread recognition of the Safety-First idea cannot but be most gratifying to all who have labored to bring about a greater and better conservation of human life and of human weal. When advertisers come to use, as many of them are now doing, the slogan Safety-First in the promotion of their enterprises and for the increase of their sales, one can well say that Safety-First has, indeed, arrived. What was at first but an idea and later an isolated movement, sporadic in its character, primitive in its application, and championed only in a few widely separated communities by those who were often misunderstood, and not always encouraged in the work, has now grown to be a great national issue, lauded and indorsed wherever its true purpose is understood.

The value of, and the need for Safety-First in all that the expression implies is being everywhere extolled by writers and speakers. The press and the platform, yea, and the pulpit as well, are commending it and urging it. Safety, efficiency and conservation (sane, practical, reasonable, conservation) are closely allied. The gospel of this trinity is the working, living gospel of rightful, worthy achievement. Without the maximum of safety—the minimum of hazard—there cannot be the highest degree of efficiency. Human conservation has to do with both safety and efficiency. A fuller degree of safety means true conservation, and conservation works for efficiency.

We, in the United States, are living in a practical age and equally so in a humanitarian age. Never have the possibilities for human achievement been more fully recognized, nor has any age ever placed a higher value on human life than that held in our own country today. The Safety-First idea is one of the phases of this condition. Today the cause is

advocated and forwarded by individuals and organization alike. That useful branch of the governmental service, the United States Bureau of Mines, has its mine-safety stations, its mine-rescue cars, its first aid equipment, its instructors, its publications, its research investigations, its experimental work, its corps of rescue workers, its multiplicity of avenues of aid reaching out and branching out in an ever-widening field. State mining departments, individual mine owners and mining companies, institutes, societies, associations of owners and operators, associations of miners, organizations of every character have taken up the work and are extending its interests and activities. Railroads, both electric and steam, are strongly pushing the movement with results that have far exceeded their most sanguine expectations. No greater testimony can perhaps be presented than the reports of several of our great railway companies, showing no passengers killed in years and a steadily decreasing number of killed and injured among their employees. It is already accepted as a fact that traveling by rail is actually freer from hazard than remaining at home and engaging in one's accustomed vocation and avocations.

In the reduction of hazard the obligation, the responsibility of the individual plays a most important part. To insure a higher degree of safety it is necessary to have cooperation by the individual. Danger can be minimized through the application of Safety-First measures, rules and regulations, but absolute immunity from accident can never be assured. Many accidents are due to natural causes, those beyond the power of the individual to control, but it is admitted that in a very large proportion of fatalities and casualties the human factor is the predominating one. Automobile regulations, for example, may be

so comprehensive and so inclusive as to practically cover and guard against every contingency affecting the pedestrian. Of course such regulations are not perhaps actually in force anywhere, but assuming that they were, there would still be certain obligations resting on the foot-traveler to make them fully operative—a certain cooperation upon his part is necessary. The pedestrian must do his share, and this is true in all lines and in all walks of life.

Without, in any way wishing to reflect on the employee, who has a right to de-

measures, having for their purpose the safe-guarding of the lives, limbs and health of workers, is usually to be found among the more or less ignorant. With education comes better understanding of the true purpose of the rules that, to the less enlightened minds, have seemed onerous, burdensome and restrictive. With knowledge comes a dissipating of that suspicious attitude that is usually the concomitant of ignorance.

Cooperation and understanding are absolute essentials for real success in Safety-First work. Commendable as the work



FIRST ANNUAL FIRST AID CONTEST, PITTSBURGH COAL OPERATORS' ASSOCIATION.
Treatment for broken spine.

mand and to receive the maximum protection against hazard while engaged in his daily toil, it is, nevertheless, true, that there is not always that full cooperation on his part that is so to be desired and so necessary to secure the best results. It is not an unusual experience of employers to find a disposition upon certain employees to disregard, wherever possible, certain rules designed for the operatives' protection. Particularly is this the case where such regulation entails something of extra exertion or the expenditure of time for which there is no monetary return.

It is only just to say that a large proportion of the violation or disregard of

always is, even more praise is deserved by those who are working under conditions where doubt, suspicion, and perhaps, dislike are to be met with and overcome—these together with inertia, which is far from being an inconsiderable factor in all movements for betterment. In no small number of cases employers are conducting or aiding schools to wipe out illiteracy among their men. Among these may be named the W. G. Duncan Coal Company, which has built and equipped a schoolhouse at Graham, Kentucky, in which night classes are being conducted. This is a part of the statewide campaign against adult illiteracy in Kentucky.

The saloon has been an element weighing heavily against safety and efficiency. Through the enactment of restrictive or prohibitory laws, and also through the rules put into force by employers, the power for harm is lessening. The railroads, practically all of them, have made abstinence from alcohol a condition of employment with trainmen. Mining and manufacturing companies are fast falling in line. The Delaware, Lackawana and Western Coal Company is one of those



RESCUER OF U. S. BUREAU OF MINES.
Showing proper way to carry unconscious man.

to take up this matter as one of the phases of the Safety-First campaign in its collieries. It has served notice on its foremen, drivers, bosses and all others who have charge of other employes, that hereafter they must not enter saloons. The notice to the bosses says they are expected to set an example for the men. Those who violate the company's orders and enter a saloon will risk losing their jobs.

That alcohol and accidents have a relation to one another is known to every accident insurance company. All such companies report that not only are a goodly percentage of accidents due to

drink, but that taking the public at large, the susceptibility to accidental injury and death is greater among those who indulge in intoxicants.

A prominent Pennsylvania operator, who is foremost in the work of forwarding the Safety-First idea in the collieries with which he is connected, says: "The miner's worst enemy in respect to accident is himself, and the various operators have attacked the problem of protecting him against his own carelessness in a score of different ways." The speaker referred to the United States Bureau of Mines' work in using photographs and moving pictures. The photographs published by mining companies, including the Lackawana, which has issued a book of photographs showing the right and wrong way to do everything in the mine and the book of "Don'ts," issued by the Susquehanna, which volume contains specific cautions to all classes of laborers employed in its mines.

So difficult is this problem in its solution and so much is there to combat that one of the large mining companies recently refused to adopt a fuse for firing blasts that took forty seconds longer to burn than those now in use. The argument in its favor was that it gave the miner a longer time to seek a place of safety after lighting the fuse. This very argument was turned against the use of the fuse, in that it gave the firer a longer time in which to get back before the explosion took place. For a number of years the annual reports of the Pennsylvania Department of Mines have called attention to the fact that all but a small percentage of the accidents are due to carelessness and disobedience of rules.

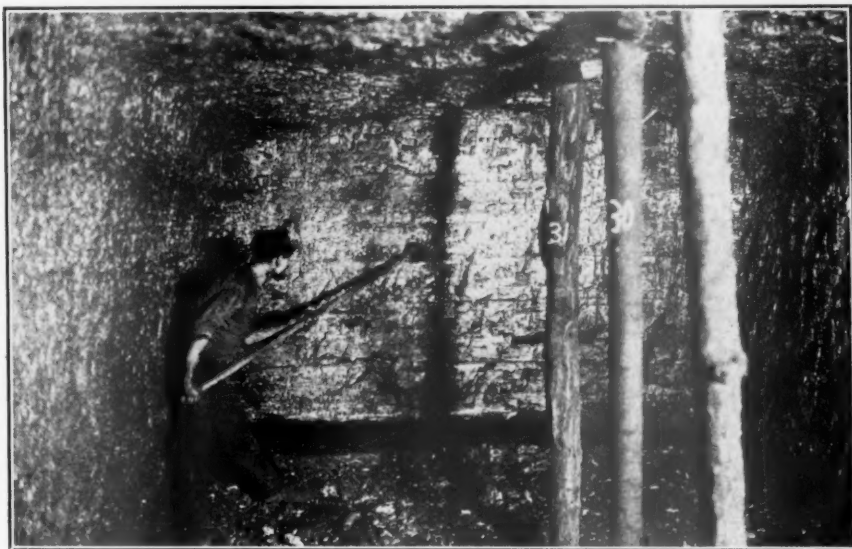
Practically all the large coal companies in Pennsylvania are said to have increased the number of their responsible men, mine foremen and assistant mine foremen, using the additional ones to guard against accident under the title of Safety Inspectors, Patrols, or simply Foremen. Some of the companies divide up their mines into small, easily inspected districts, for each one of which one of these additional foremen is held responsible.

Regular daily inspections are conducted before anyone but the inspector is al-

lowed to enter the mine. These inspections are aimed to discover and mark every dangerous place, detect the presence of gases, and to include every human precaution which human foresight can devise. Throughout the working days the inspectors and foremen continue this search for lurking dangers. The number of assistant foremen and safety inspectors has been increased to such an extent that in one company the miners claimed undue interference with their work and went on a strike as a result.

ized is testified to in the increasing interest by them in first-aid and rescue work and all else that pertains to safety and better conditions in mining. During the last five years over 25,000 men have been trained by the United States Bureau of Mines in mine rescue and first-aid work, while those receiving such instructions through associations, institutes and societies totaled several times that number.

An individual case of company instruction is that of the Philadelphia and Reading Coal & Iron Company, which



AUTHORIZED SHOT FIRER TAMPING A HOLE.

Fire boss' notations on post indicating dates of inspection of heading.

In these mines if a workman has been warned to set a prop or pry down a loose roof, he is discharged if he fails to carry out instructions within the proper time allowance.

The same operator is authority for the statement that "It is probably safe to say that almost every accident in the mines is due to some human error or carelessness, except when nature springs a new surprise or conceals a dangerous condition so cunningly that forty years of experience are insufficient to guard against it."

That the value of and necessity for cooperation by the worker is being real-

has instituted a system of reminding the superintendent and mine foremen of their short-comings and their accomplishments through photographs taken in the mines. These are reflected on a screen at meetings of the officials. Mistakes are pointed out more by comparison with the good work of other men than by directly calling attention to them. Through these views it is plainly seen which style of work is the best.

As showing the value of the instruction to the mine worker himself is instanced a concrete example in the case of a member of a team trained by a Bureau of Mine Rescue Car force at

Tonopah. This man was at work in a mine, putting fuses and caps together at a distance of about 400 feet from a station when he dropped a box of eight caps, the explosive wounding him terribly in arm, leg and foot. He immediately cut his shoe-strings out of his shoes, and making a tourniquet, put it in place. He was bleeding profusely and would, according to the surgeon, have died in about five minutes. After administering first-aid treatment to himself, he crawled 400 feet to the station and telephoned for help. Over 200 pieces of copper were found in his body, and yet he came out of the hospital without the loss of arm, leg, finger or toe.

Safety devices and safety appliances, safety rules and regulations for the worker are more and more being availed of, but the fact must ever be borne in mind that all devices and rules will, after all, be of little value, unless backed up by discipline and by the favorable sentiment and cooperative spirit of the employees. Wherever real success is achieved in the mines or elsewhere it will be through the active cooperation of the individual himself.

Canada's mines rank third among her resources. Agriculture coming first and her forests second. Fisheries rank fourth and furs fifth.

Rescue Truck No. 2, of the United States Bureau of Mines is scheduled to be at Russellton, Pa., from March 1 to March 10, coming from Harwick, Pa., where it has been stationed, February 20 to February 28.

ENGINEERING CONGRESS

The governing body of the American Institute of Electrical Engineers has decided to indefinitely postpone the holding of the Electrical Congress. It, how-

ever, does not effect the plans for the International Engineering Congress which will be held, as originally scheduled, September 20-25, in San Francisco. Full information concerning the Congress may be obtained by writing to The International Engineering Congress, 1915 Foxcroft Building, San Francisco. The congress will be held under the auspices of, and will include, the five national engineering societies—The American Society of Civil Engineers, The American Institute of Mining Engineers, The American Society of Mechanical Engineers, The American Institute of Electrical Engineers, and the Society of Naval Architects and Marine Engineers.

FOR POWER PLANT FIREMEN

A paper of interest and value to firemen in manufacturing plants has just been issued by the United States Bureau of Mines and is entitled "Hand Firing Soft Coal Under Power-Plant Boilers." The paper is designed especially to meet the needs of firemen in plants of approximately 1,000 to 2,000 horsepower capacity. The subject is handled in a simple and understandable manner, free from technicalities, being designed particularly to be read by the firemen themselves. The paper describes various methods of firing soft coal under power plant boilers and how to so handle fires as to get the most heat from the coal and make the least smoke. Copies of the paper may be obtained free by addressing the Director of the Bureau of Mines, Washington, D. C.

The total amount of the coal mining output in the United States in 1913, as reported by the United States Geological Survey, exceeded by 80,000,000 tons all the coal that had been mined in this country up to the close of the year 1871.

ARIZONA AND THE MINING CONGRESS

EXCERPTS FROM AN ADDRESS BY COURTENAY DE KALB AT TUCSON MINING CHAPTER SECTION ORGANIZATION MEETING

The American Mining Congress enjoys the advantage of being a popular institution. The American Institute of Mining Engineers was unable to do exactly what the Mining Congress is doing, partly because it deliberately kept aloof from politics and also because it represented more especially the operating side of mining. The Mining Congress, on the contrary, possesses a wide field for usefulness in giving intelligent guidance to legislation as the representative of both the capitalistic and the operating sides of the industry.

One of the surest ways to forward the mineral industry is to safeguard it against ill-conceived legislation. The non-partisan political influence of the Mining Congress is therefore the great opportunity of the organization, and in this field its usefulness may be equally great in the initiation of advantageous measures and in the protection of established enterprise from improper restrictions and burdens.

Arizona has need of the activities of the Mining Congress, and we may count upon the Arizona chapter to perform functions of the greatest value in stimulating the development of our resources. It should receive the endorsement and co-operation of all who have the welfare of the state at heart. There is more undeveloped mineral territory here than in any other area of equal size in the union. In Pima county alone there are great unrealized opportunities for the wise employment of capital.

Perhaps we may not anticipate frequent discoveries of phenomenal veins of gold and silver, although, after the experiences in Nevada and more recently in Cripple Creek, Colorado, one may not be too sure of that. Nevertheless, throughout the entire west the superficial

rich cream was chiefly skimmed by the last two generations, but in Arizona we have a wonderful amount of the milk that makes rich cheese, and there is more money in making cheese than in making butter after all, because there is always so much more of it. There are conditions suggestive of extensive areas of gravel that may prove profitable for gold dredging within a radius of a hundred miles from Tucson, awaiting some men with money and faith enough to drill them. There are important districts in which interesting lead and zinc deposits are as yet but feebly prospected. There is a great granitoid complex stretching away to the west and southwest, in which occur monzonites, dacites and granodiorites, that give promise of containing commercial areas of disseminated copper ores. Moreover, many of these so far as the insignificant preliminary prospecting has gone, show larger quantities of gold and silver than are usually present in disseminated copper deposits. It is not because of the brilliant results obtained at Ajo that I say this. Just because there exists an Ajo with its 40 million tons of demonstrated ore containing 1.51 per cent copper, it is not conclusive that there must be others, yet a great mine seldom stands alone. The Ray had its satellites, the Calumet and Arizona projected the anticipated life of the Bisbee district far into the future by its brave plunge deep through barren ground at the Junction Shaft; and no one believes that the Mule Pass range has yet revealed all its store of copper.

So we believe that Pima county has more than one Ajo not because of reasoning from analogy, but because of striking indications, different of course from the Ajo, for outside of the same geological associations it is not to be ex-

pected that the identical characteristics will be repeated. In each new geologic setting new phases, new phenomena, will appear. These circumstances, however, retard development until confidence has been established through the conclusions of competent and unbiased men, for it takes a fortune to prove a great low-grade mine. The Guggenheims spent \$2,000,000 developing Chuquicamata, before venturing to erect a metallurgical plant, but now Chuquicamata is reckoned the largest proved copper ore-body in the world. At Ajo a total of 23,000 feet of hole was drilled by the diamond drill, and 5468 feet of underground work was driven to check the drill samples, before the C. & A. could announce the mine as proved. We know how some of the most experienced mine operators in America looked at Ajo and went away; how others looked a little more curiously and at some further expense, and then quit, and how the C. & A., trusting in the encouragement of its able geologists, took the risk and won!

Well, there are other interesting areas in Southern Arizona; there are some right here in Pima county. They are different from Ajo—as different as Ajo was from any other previously developed and disseminated “porphyry” copper deposit. What is needed is the courageous application of capital to prove these areas.

Preliminary to this, however, there must be some means of carrying conviction to the minds of capitalists that the probabilities of their existence are founded upon something more than the ardent imaginations of prospectors and promoters.

The Arizona chapter of the American Mining Congress can do much toward the unfolding of such resources. It is not enough merely to affirm that opportunities lie open. Some sort of proof must be submitted. For one thing, the chapter can keep a watchful eye upon the activities of the United States Geological Survey and the United States Bureau of Mines, to the end that a fair proportion of the field work of these organizations may be performed in Arizona. I do not mean to even hint that either Dr. Smith of the Geological Sur-

vey, or Dr. Holmes of the Bureau of Mines, is neglectful of Arizona, for such is not the fact, but those who are insistent and whose insistence has the force of an organization behind it, get more than those who sit down and wait.

But we must not depend upon the Government to do the whole work of making known the possibilities of Arizona. This great state, standing first in the union as a copper producer, should seriously assume the responsibility of working out its geological features through the agency of the State Geological Survey. An array of bulletins, giving authoritative data on those areas in the state which afford good economic possibilities, would be more effective than any other form of advertising to awaken the interests and to bring in new capital. It would constitute that sound technical warrant which will furnish bone and sinew for our boosting. One of the important labors of the Arizona chapter of the Mining Congress should be to stand behind this project until a competent State Geological Survey, absolutely outside the pale of party politics, shall have been organized and set to work. There is already available a group of highly trained and able men in the state university who could become the nucleus of an organization that would place an Arizona survey at once on a parity with the best state surveys in America. These men have the proper qualifications; they are unsurpassed in their attainments. They may be too busy with their other duties to carry out the large amount of needed field work personally, but they could supervise it, and, as I said, become the nucleus of an organization that would command the respect and attention of the whole country. The laboratory equipment of the university could also be made available for a time, so as to save initial expense, thus enabling the survey in the beginning to throw a sufficient corps of men at the practical field problem in order to secure prompt results covering a large territory. If this were pushed with sufficient energy it would be possible to issue some preliminary reports of substantial value next autumn. I commend this to the consideration of the Arizona chapter as an opportunity to materially

forward the development of new mining operations in Arizona.

TUCSON SECTION OF THE AMERICAN MINING CONGRESS

Arizona's newly organized chapter of The American Mining Congress is justifying the predictions that it would prove to be an effective organization. The Pima County section of the Arizona chapter has been organized at Tucson with a good charter membership, which is being added to most encouragingly. The preliminary meeting was held January 28 in the headquarters of the Tucson Chamber of Commerce, when the cause and purposes of the organization were presented by E. L. Wolcott, assistant secretary of the Mining Congress. Mr. Wolcott was introduced by J. E. Owens, who acted as chairman of the meeting. Other speakers were C. F. Willis, professor of mining at the University of Arizona; Capt. William McDermott, and Courtenay DeKalb. Mr. Wolcott spoke of the work now being carried on by the Congress. He explained that an associate membership had been created to include all classes of business and professional men and urged the business men to join the organization, saying that busy mines mean busy towns in Arizona and prosperous merchants. He referred to the wonderful mineralization of the state and of the comparative ease with which mining could be carried forward. Mr. Wolcott said that before capital can be brought to Arizona conditions favorable to capital must be created. He suggested the gathering of data on the mineral deposits in all parts of the state and said that the mining industry of Arizona must have a voice in its own management. He referred to the bill now before Congress to provide for a complete mineral survey of the Southwest. The government has been asked to drill test wells in the valleys in the Southwest for the purpose of discovering the extent of the underground waterflow.

Mr. Willis spoke of the surprisingly large number of letters received from all parts of the country asking about the mineral resources of the state and requesting information as to the location of the various mineral deposits. He said that the legislature had been asked to appropriate \$5,000 for the use of the bureau. Capt William McDermott urged that everyone interested in mines or engaged in business join the chapter, as he said that it would protect industry from vicious laws and be a benefit to the taxpayers. Mr. DeKalb spoke at length concerning the American Mining Congress, its faith in Arizona, the mining wealth of the state, its wonderful possibilities, and of what must necessarily be done to make the most of them. A résumé of Mr. DeKalb's address will be found in another part of the JOURNAL.

On the following day another meeting was held under the auspices of the Luncheon Club at the old Pueblo Club. Among the visitors at the luncheon were Capt. Stacey, U. S. A., inspector-instructor for Arizona; John F. Adler, a prominent business man of San Francisco; Prof. Michael Ortan, of the Polytechnic Institute of Warsaw, Poland, and Dr. Fisher, formerly of the Presbyterian Hospital of New York City. Short talks were given by each of the gentlemen. President Owens, of the club, presided and introduced the speakers.

The Tucson section starts out under flattering conditions, with practically the unanimous support of the business and professional men of Tucson, as well as of all those directly interested in the mining industry.

John H. Robinson, the newly selected secretary of the Arizona chapter, accompanied Mr. Wolcott and was active in the organization work.

CANADIAN MINING INSTITUTE

The seventeenth annual meeting of the Canadian Mining Institute will be held in Toronto, March 3-5. The institute's headquarters will be at the King Edward Hotel.

MINING AT THE EXPOSITION

COMPREHENSIVE DISPLAY UNDER AUSPICES OF THE UNITED STATES BUREAU OF MINES

The mining and metallurgical industries of the United States are to be well represented at the Panama-Pacific International Exposition at San Francisco. This will be the first time in the history of this country that these industries have been officially represented among the government exhibits at an international exposition. There will be four separate exhibits which will be in charge of the United States Bureau of Mines or in cooperation with branches of the industries concerned.

The exhibit, designed to show what the United States Bureau of Mines is doing, is in the Palace of Mines and Metallurgy opposite the main north entrance to the building. Adjoining this on the east is the Experimental Metallurgical Laboratory operated by the Bureau of Mines in cooperation with certain metallurgical industries. Beneath the floor and entered through a shaft and slope in the southern end of the Bureau of Mines space is the Demonstration Mine, designed and operated by the bureau in cooperation with the mining industry. To the southeast of the Palace of Machinery and immediately adjoining the amusement zone is the Petroleum Exhibit, designed and operated by the Bureau of Mines in cooperation with the petroleum industry.

Of these four exhibits, that of the Bureau of Mines in the Mines and Metallurgy Palace is the only one made from and maintained by funds appropriated by the United States Government. The other three are financed by the several industries concerned, the government furnishing only the skilled personnel in the employ of the Bureau of Mines in connection with the investigations and demonstrations.

The importance of the mineral industries in the United States is indicated by the following statistics showing the increase in production of the more prom-

inent products of these industries in the twenty years from 1893 to 1913, viz.:

	1893	1913
Gold, fine ounces ...	1,729,323	4,293,783
Silver, fine ounces...	60,000,000	66,801,500
Metallic copper, lbs..	329,354,398	1,224,424,098
Iron ore, long tons..	11,587,629	61,980,437
Refined lead, short tons	229,333	462,460
Zinc spelter, short tons	78,832	346,676

Similarly, the production of bituminous coal has increased in the same period from 128,385,231 short tons to 478,523,203 short tons, and Pennsylvania anthracite from 53,967,543 short tons to 91,626,922 short tons.

Twenty-eight exhibits are shown in the Bureau of Mines space, in addition to those shown in the Experimental Metallurgical Laboratory, the Petroleum Exhibit, and the Demonstration Mine.

Modern methods of rescue and recovery work are shown. Sets of artificial breathing apparatus are exhibited, appliances for testing this apparatus to secure its safety are shown. There is a gas-proof smoke room. Men wearing the breathing apparatus enter this room which is filled with irrespirable gas and smoke and descend into the mine at the two daily explosion demonstrations. Returning from below they bring out a supposed victim, restore him to consciousness by artificial respiration, bandage his wounds by first-aid methods, and carry him into the typical mine hospital under the management of the United States Public Health Service.

This hospital fully equipped with such appliances for emergency treatment and surgical operations as are necessary is in charge of a surgeon of the Public Health Service and a trained nurse, who cooperate with the mine rescue and first-aid miners of the Bureau of Mines in their demonstrations of first aid, health, and sanitation.

There is an exhibit of safety lamps in

which is shown a device designed by the Bureau of Mines for demonstrating the detection of gas by safety lamps, and a portable safety lamp testing box. A complete collection of the ingredients which go to make up the various classes of explosives, together with samples of the final product is displayed.

The welfare exhibit of the bureau includes a map showing the arrangement

trated by a small apparatus which shows how finely-divided coal dust in contact with a sufficient amount of oxygen furnished by the surrounding atmosphere becomes just as explosive when ignited as black powder. Another exhibit is a model of the rock dust barrier designed by engineers of the Bureau of Mines to liberate into the atmosphere on the occurrence of an explosion a cloud of fine-



PALACE OF MINES, PANAMA-PACIFIC INTERNATIONAL EXPOSITION

and appearances of a hypothetical industrial village.

A map of the United States shows the location of the six rescue stations of the Bureau of Mines and the positions of the eight rescue cars as they move about from mine to mine, conducting their daily demonstrations to miners in safety methods, by which there have been trained over 25,000 miners in modern mine-rescue and first-aid work and at which have been given lectures to more than 150,000 persons, mostly miners.

The explosibility of coal dust is illus-

trated by a small apparatus which shows how finely-divided coal dust, the effect of which is to blanket and limit the extent of the explosion.

An exhibition device shows the distribution of the losses that occur in burning coal in various types of boiler furnaces and tends to illustrate the need of methods of minimizing the losses of fuel which now total many millions of dollars a year.

The complex operations which take place in the iron-blast furnace are shown by a profile chart and flow sheet combined. There are exhibits of typical

strata of carnotite ore, the principal source of radium. Samples of all the known radium-bearing ores of the country are shown, also samples of the various commercial products of radium. The radium booth contains six spintharoscopes in which actual radium emanations may be viewed.

The motion picture booth illustrates the activities of the various government bureaus. A reel of pictures show demonstrations of explosibility of coal dust, rescue work and rescue car operation, first aid, etc.

An experimental metallurgical laboratory shows work in certain of the newer processes. Ores will be received from mines and will be crushed, sized, concentrated and smelted under the immediate direction of metallurgical engineers of the Bureau of Mines. The exhibit will illustrate methods of hydro-metallurgy or water separation, pyro-metallurgy or smelting, and electro-metallurgy. Work now being carried on in the chemical research laboratory of the Bureau of Mines will be transferred to this space.

The petroleum exhibit consists of pictorial display; geological display; statistical exhibit; library of petroleum literature; technological exhibit; a large collection of crudes and refined products; and an exhibit of housing and sanitary problems.

In the technological exhibit there will be shown full-sized drilling rigs in operation; transportation; tankage and storage problems will be demonstrated. A complete testing refinery will be constructed and through it will be run the crudes in carload lots, the resulting products from which will be available for use in the Machinery Palace.

The Demonstration Mine is an actual reproduction of full-sized entries, drifts, stopes and rooms, selected from typical mines in the United States. In the rooms of the Demonstration Mine are installed the machinery and appliances used in modern mining operations. Visitors will find here a model mine, designed and operated under such modern working conditions as are best calculated to assure the safety and health of the mine workers as well as efficiency of operation.

It is an exhibit of gold, silver, lead, copper, iron, hard and soft coal mining,

quarrying methods, mining machinery and equipment; and mine safety, rescue and first-aid work as arranged by the Federal Bureau of Mines to illustrate modern practices. This is done by reproducing the underground workings of some of America's most celebrated mines, including the actual ore, coal, mine timbering and machinery in place as in the original mines, and by means of motion pictures depicting mining operations, and by demonstrations of modern rescue and first aid methods at a vividly realistic explosion.

U. S. GEOLOGICAL SURVEY AT THE PANAMA-PACIFIC EX- POSITION

Among the various displays made in the United States Geological Survey's exhibit at the Panama-Pacific International Exposition, in San Francisco, will be two stage-like settings—partly model and partly painted—representing before and after development of a district in the arid west. In the before-development scene topographic engineers are at work with their instruments on the headlands, geologists have stripped a bed of coal and are taking samples for analysis, other geologists are studying rock-formations, an automatic river-gage is in the foreground, a hydrographer is measuring the flow of the stream nearby, and a camp and pack-train is seen in the background.

The same district after development is shown in the second scene. A power plant in the distance testifies to the results of the stream gaging, the knowledge of which has been utilized in planning the plant, and also an irrigation project that now covers the valley floor. A coal bed is being mined, an oil field with derricks is under development, a sandstone bed is being quarried, and mining and milling are in progress in the mountains. Progress is further evidenced by a town, road and railroads.

The work of the U. S. Geological Survey is essentially pioneer work. It prepares the way for the engineer and the constructor, and when these latter appear on the ground and results of the work of the Bureau are apparent its men have moved on to other and newer fields.

PENDING STATE LEGISLATION

The following legislative measures of interest to the mining and metallurgical industries are now receiving consideration in the several State legislatures:

Arizona.—House Bill, introduced by Mr. Farrell, amending the existing statutes relating to liens on mining claims and mines and exempting claims under lease and bond from the provisions by complying with prescribed conditions. The bill provides that the provisions of the law shall not apply to any mine or mining claim working under lease, bond or option by other than the owner when the owner shall have filed with the county recorder a notice to the effect that the mine or mining claim will not be subject to such lien or the owner responsible for any debts of those working the mine or mining claim.

Colorado.—House Bill No. 176, introduced by Mr. Dailey, providing for the safety of persons employed in and about coal and metalliferous mines, and providing for the examination of persons seeking employment therein, in order that only competent persons may be employed as miners, establishing the boards of county commissioners of the various counties as boards of examiners for this purpose, and providing penalties for the violation of the act.

House Bill No. 68, introduced by Mr. Staley, appropriating for the further equipment and operation of the experimental ore dressing and metallurgical plant at the Colorado School of Mines at Golden.

House Bill, introduced by Mr. Roberts, providing for safety gates on cages in the mines.

House Bill No. 100, introduced by Mr. Weiss, same as House bill introduced by Mr. Roberts.

Senate Bill No. 100, introduced by Mr. Lines, amending act providing for inspection of kerosene, gasoline and similar products.

House Bill No. 177, introduced by Mr. Drake, determining and defining relations between employers and employes, establishing an industrial commission, insurance, compensation, etc.

House Bill No. 176, introduced by Mr. Saily, providing for the safety of persons employed in and about coal and metalliferous mines, providing for examination of persons seeking employment therein in order that only competent persons may be employed as miners, establishing boards of county commissioners for the various counties as boards of examiners, and providing penalties for violation.

House Bill, No. 157, introduced by Mr. White, providing for sprinkling devices in mines to overcome dust made in handling ores and in the operation of power drills.

House Bill No. 156, introduced by Mr. Tonge, amending the mining tax act.

House Bill No. 153, amending the act providing a lien for miners, millmen and others furnishing materials for miners and mills or either of them.

Idaho.—House Joint Memorial No. 2, introduced by Mr. Kribs, memorializing and requesting Congress to amend act or ruling of the Land Office under date of June 7, 1909, in such form and manner that the agricultural lands within Yreka Mining District, Shoshone County, Idaho, be so segregated that the rights of prospectors and miners may be conserved and protected. The Land Office ruling referred to set aside by the government and designated as agricultural lands a considerable portion of the district mentioned. The memorial recites that prospectors and miners have for years been locating and recording mining claims and properties and are now engaged in prospecting and developing mines and mining properties and have spent much money in improvements; it also recites that unless some action is taken promptly by the United States government, looking to the proper classification and segregation of the lands in the mining district designated "Agricultural," that great and irreparable injury will be done to the mining men interested in that district.

House Bill No. 151, introduced by Mr. Conner, providing for the protection and safety of workmen and for the inspection and regulation of all places of employment in all hazardous works and occupations, providing a schedule of compensation for injury or death and prescribing the liability of employers who elect not to pay such compensation, establishing an industrial accident board, defining its powers and duties and providing for a review of its awards. The bill provides for compensation for temporary disability and total disability and for compensation to dependents in the case of fatal injury. A schedule of compensation, based on the average weekly wage, is provided for in cases of disability because of injury for loss of members and for death. State insurance is provided, the rate of insurance being based on the character of the hazard. Employers are prohibited from deducting any part of the insurance premium from the wages or earnings of workmen. Employes, however, may contribute to a hospital fund. Reports of all accidents must be made by employer to the accident board.

Indiana.—Senate Bill No. 136, introduced by Mr. Kolum, creating a commission to codify the laws on mines and mining and providing

for the appointment of the members of the commission.

Iowa.—Senate Bill introduced by Mr. Whitmore, providing that the expense of shot-firers now borne by the miners shall be transferred to the coal companies.

Other Iowa legislation of interest to the mining industry includes a state insurance bill, calling for the establishment of a commission to administer the state insurance fund. The Iowa Supreme Court is expected to hand down a decision on the validity of the present act during the month.

The miners propose introducing a bill or bills, providing for the installation by mining companies of wash-houses, also a bill calling for an examining board before which all miners must pass an oral examination before being permitted to work in the mines.

Kansas.—House Bill No. 626, introduced by Mr. Bird, repealing the act creating the school of mines and metallurgy at Wier.

Michigan.—Senate Bill No. 2, introduced by Mr. Wood, creating a commission to be known as the Michigan Securities Commission, to be made up of the Commissioner of the State Banking Department, the State Treasurer, and the Attorney General, to pass upon securities offered for sale. Exemption is made in the case of governmental and municipal securities, listed stocks and bonds, securities of state or national banks and trust companies, building and loan associations of the State, mortgages, unsecured commercial paper, etc. The commission provided for is to succeed the Michigan Securities Commission created in 1913.

Senate Bill 66, introduced by Senator DeLand, provides for workmen's compensation for injury or death; establishes an industrial accident board; defines its powers and provides for a review of its awards. The bill provides that no compensation shall be paid for an injury incapacitating the employee for less than two weeks, compensation to begin on the fifteenth day after the injury. Disability for four weeks or longer entitles injured employees to compensation from the date of injury, provides for compensation to dependents of deceased employees, for loss of physical members; compensation to be based on average weekly wages.

Senate Bill No. 70, introduced for Senator Hilsendegen by Senator Ogg, providing for a board of mediation and conciliation, prescribing its powers and duties and providing for arbitration in the settlement of differences between employer or employees, the provisions of the act applying to railroads, mines and public utilities. Request by either party to a controversy shall receive attention at the hands of the commission, which shall use its best efforts to bring about agreement. In case of a failure to bring about an amicable settlement controversy may be submitted to

the arbitration of a board of four persons, one each to be selected by the parties to the controversy and two to be selected by the arbitrators thus chosen.

Missouri.—House Bill No. 14, introduced by Mr. Correll, providing for the installation by owners or operators of all coal mines wherein ten or more miners are employed in digging coal of suitable buildings of sufficient size to accommodate all the men employed in the mines, the location of the buildings to be convenient to the principal entrance of the mines and provided with individual lockers, proper light, heat, hot and cold water and shower baths, and to be maintained in good, sanitary condition and order for the use of employees. Baths and lockers for whites and negroes must be separate, but may be in the same building. Employees shall furnish their own towels, soap and lockers for lockers. A penalty of not to exceed \$200, or imprisonment is provided for violation of the act. Each week of failure to comply with the provisions constitutes a separate offense.

House Bill No. 395, introduced by Mr. Cook, giving the chief state mine inspector and his assistants the power and making it their duty to stop the operation and close any mine or part where poisonous damps exist, where rotten ropes or unsafe cages are used or where a safe escape way is not provided for all employees. A fine of not to exceed \$100, or imprisonment of not to exceed ninety days, or both fine and imprisonment, is provided for each separate violation of the act.

Senate Bill No. 245, introduced by Mr. Moore, the same as House Bill No. 14, introduced by Mr. Correll, with the exception that strip-pit or steam shovel coal mining is exempt from the provisions and that the passage of the act is stated to be necessary for the immediate preservation of the public health and safety, and therefore not subject to the referendum provisions of the constitution.

Senate Bill No. 293, introduced by Mr. Morton, the same as House Bill No. 395, introduced by Mr. Cook.

Montana.—House Bill No. 100, by Mr. Mackel, making it incumbent on all persons, firms or corporations offering employment where a strike or industrial dispute exists to so state in the advertisement or notice wherein the persons wanted are to be employed whenever such is the fact. Violation of the act is made punishable by imprisonment in the county jail for a term not to exceed six months, or by a fine not to exceed \$500, or both.

House Bill No. 20, introduced by Mr. McNalley, providing that every employer of labor, agricultural excepted, shall make wage payments at least twice each month. Discharged employees shall receive wages due within forty-eight hours after having been discharged. Violation of the act carries with it a penalty of not to exceed \$200 for each offense.

House Bill No. 43, introduced by Mr. Kiley, providing that it shall be unlawful to coerce or compel any person into a written or verbal agreement not to join or become a member of a labor organization or any organization of a like character, or to coerce membership in a labor organization as a condition of his securing employment or continuing in employment. A penalty of not to exceed \$100 or jail imprisonment of not more than 30 days or both fine and imprisonment is provided.

House Bill No. 233, introduced by the Judiciary Committee, providing that in an action to recover damages for personal injury the court may order a physical examination of the injured person by competent physicians or surgeons who may testify as witnesses in the action. Disregard of an order of the court as to such examination shall constitute contempt of court. The fees of the physicians or surgeons who may testify as witnesses in by the party or parties applying for the examination and shall not be made a part of the costs of the action.

House Bill No. 157, introduced by Mr. Coiners, requiring coal mine operators to furnish shot-firers.

Senate Bill No. 52, by Mr. Kane, providing for compensation for injured workmen and for their dependents where injuries result in death, creating an industrial insurance department providing for care of injured workmen, providing penalties for non-observance of regulations for prevention of injuries and other violations of the act, asserting the police power, and, except in certain cases, abolishing the doctrine of negligence as ground for recovery of damages, and depriving courts of jurisdiction of such controversies.

The bill recites that the State of Montana, exercising its police and sovereign power, "declares that all phases of the premises are withdrawn from private controversy and sure and certain relief for workmen, injured in extra-hazardous work, and their families and dependents is hereby provided regardless of questions of fault and to the exclusion of every other remedy, proceeding for compensation, except as otherwise provided in this act; and to that end all civil actions and civil causes of action for such personal injuries and all jurisdiction of the courts of the state over such causes are hereby abolished, except as in this act provided.

Any such cause of action assigned to the state may be prosecuted or compromised by the industrial insurance department. The rate of contribution to the department funds shall be determined by the department according to the hazardousness of the employment, the insurance to be paid by the employer, being calculated upon his estimated payroll before commencing operation. Adjustment shall be made on or before January 2 of the following year. The bill makes it unlawful for the employer to deduct any part of the premium from the wages or earnings of his workmen. A schedule of compensation is made a part of

the bill, payments being made for partial disability, permanent disability, loss of members and to dependents in cases of fatal injury. Wherever there is injury to a workman because of the absence of any safeguard or protection required by law, the employer shall put into the accident fund, in addition to the sum required, 50 per cent. of the amount paid on account of such injury. Medical, surgical and hospital services at the cost of the employer, not to exceed \$7.50 per week, are provided for a period not exceeding twenty-one days. It is obligatory on the employer to see that immediate medical and surgical services are rendered and transportation to hospital provided. Employers must report all accidents, failure to do so being subject to a fine of \$500. Interstate or foreign traffic is excepted. A court review of any decision by the department is allowed any employer, employee or beneficiary who desires such review. The industrial insurance department is to consist of three commissioners at a salary of \$3,000 each.

Senate Bill No. 74, by Mr. Hogan, providing for the protection and safety of workmen, the inspection and regulation of places of employment in all hazardous works and occupations, providing a schedule of compensation, and prescribing the liability of employers who elect not to pay such compensation, and establishing an industrial accident board. The bill provides that the Commissioner of Labor and Agriculture, the State Auditor, and one member to be appointed by the Governor, shall act as the industrial accident board. Negligence of the employee shall not be regarded as a defense, unless such negligence was wilful, neither shall it be a defense that the injury was caused by the negligence of a fellow employee, or that the employee had assumed the risks arising from the failure of his employer to make proper safeguards. Household or domestic servants, those engaged in agricultural pursuits and those whose employment is of a casual nature, are excepted. Assessments of employees for hospital contracts or benefits are allowed, the assessment being limited to \$1.00 a month for each employee, except in cases where the actual cost of hospital service exceeds the amount. The bill prescribes a schedule of compensation. Employers are permitted to make payments direct to employees in case they do not elect to come under the provisions of the act. Employer's liability insurance is allowed. Safety provisions are made mandatory and penalties for neglect are prescribed.

House Bill No. 142, by Mr. Burnett, requiring pitfalls, wells and shafts not safely guarded or protected by proper enclosures, to be filled or covered to avoid danger to live stock. Where such dangerous openings exist the road supervisor may fill or cover and assess the cost against the real estate of the owner. A penalty not to exceed \$100 is provided for neglect to have openings filled after notice has been given.

House Bill No. 186, introduced by Mr. Bom-

part, creating the department of emergency state police and defining its powers and duties. The bill provides that the governor may designate sheriffs, deputy sheriffs, all members of the game warden's department, all stock inspectors, police officers and deputy sealers of weights and measures and other peace officers to act under the direction of a superintendent. They shall serve without additional pay other than necessary traveling and other maintenance expenses. Whenever, in the judgment of the governor, an emergency exists and the public peace and welfare demand it, the superintendent can assemble such members of the state police department as he may deem necessary.

House Bill No. 182, by Mr. Kelly, same as Senate Bill No. 52, by Mr. Kane.

New Mexico—Senate Bill No. 13, introduced by Mr. Pankey, amends provisions of present law relating to shot-firers to exempt anthracite mines which do not generate inflammable gas.

North Dakota—Senate bill, introduced by Mr. Lentz, providing for an appropriation of \$29,000 for the School of Mines at Hebron, \$8,000 of the amount to be used in constructing an addition to the present building.

Oklahoma—Senate Bill No. 219, introduced by Mr. Cordell, requiring county clerks to strike from the records oil, gas and mining leases upon which no work has been done and the terms of which have not been complied with.

Oklahoma—House bill, introduced by Mr. North, same as Senate Bill 219, introduced by Mr. Cordell.

Oklahoma—Senate Bill No. 194, introduced by Messrs. Fields and Moore, appropriating for extension work in zinc and lead mining districts.

Oregon—Senate Bill No. 8, introduced by Mr. Dimick, providing for a commission for the government of the Oregon Bureau of Mines, providing for the appointment of a director, defining his powers and duties, permitting cooperation with Federal bureaus and those of other states in furthering mining, providing for the publication of the findings, investigations, reports and statistics compiled by the bureau, providing for the collection of exhibits of natural resources of Oregon and authorizing entrance upon private lands in the prosecution of the work of the bureau. The proposed bill is an amendment to the existing law, establishing and creating the Oregon Bureau of Mines and Geology.

Senate Bill No. 38, by Mr. La Follett, amending the existing workmen's compensation act and providing for the creation of a fund to be known as the industrial accident fund.

Senate Bill No. 4, introduced by Mr. Barrett, creating a department of labor to incorporate therein the public duties now per-

formed by the Labor Commissioner, the industrial welfare commission, the industrial accident commission, and the board of inspectors of child labor, providing for two directors of the department at an annual salary of \$2,500 each, continuing the present labor commissioner as one of the directors during the term for which he has already been elected, and providing for an appointment of another director until the next general election. The two directors shall perform the duties now performed by the commissions named, the term of office to be four years. The terms of office of the industrial welfare commissioner, the industrial accident commissioner, and the board of inspectors of child labor will be terminated in the taking effect of the act.

Utah—Senate Joint Memorial No. 1, introduced by Mr. Dern, memorializing and urging Congress to enact the Foster bill providing for the establishment and maintenance of mining experiment and mine safety stations for making investigations and disseminating information among employes in mining, quarrying, metallurgical and other mineral industries.

The reasons given in the memorial for urging the passage of the bill are that it will improve conditions in the industries mentioned, safeguard life among employes, prevent unnecessary waste of resources, and otherwise contribute to the advantage of these industries.

The memorial states that "the proposed legislation will make commercially valuable large bodies of low-grade ores which cannot now be worked for want of suitable processes." The memorial further recites that "the mining industry has hitherto not received from the Federal government the recognition and aid that its importance deserves, and has therefore been deprived of the encouragement which has proved so wise and beneficial in the case of agriculture;" also, that it "will broaden the scope of the United States Bureau of Mines and will enable it to undertake much needed work in the behalf of metalliferous mining, instead of being practically restricted to coal mining as heretofore," and, "these enlarged activities of the Bureau of Mines are confidently expected to result in incalculable public benefit, not only to the mining states, but to the entire nation."

Senate Bill No. 15, by Mr. Dern, to require the recording and reporting of industrial accidents. The bill provides that every employer of labor, except agricultural or domestic, shall keep a record of every accident sustained by an employe in the course of his employment. Reports must be made to the Commissioner of Immigration, Labor and Statistics within forty-eight hours after the accident, giving full data concerning the injury. Subsequent reports of the results of the accident and of the condition of the injured employe shall be made by the employer at such times and containing such information as the Commissioner of Immigration, Labor and Statistics may re-

quire. Neglect to report accidents carries with it a penalty of from \$10 to \$200 for each offense.

Senate Bill No. 40, by Mr. Rideout, prescribing the liability of an employer to make compensation for injuries received by an employe in the course of employment, establishing an elective schedule of compensation and regulating procedure for the determination of liability and compensation thereunder.

When personal injury is sustained by any employe through an accident arising out of and in the course of his employment, where there is negligence on the part of the employer, the employe shall receive compensation, provided the employe was himself not wilfully negligent at the time of receiving such injury.

The right of compensation will not be forfeited upon the ground that the injury was caused in any degree by the negligence of a fellow employe.

Contracts entered into by an employer with an independent contractor to do part of such employer's work, or contracts by a contractor with a sub-contractor to do all or any part of such work, shall not bar the liability of the employer for injury caused to an employe.

The burden of proof to establish wilful negligence in the injured employe shall be upon the defendant. A schedule of compensation based on wages received at the time of injury is a part of the bill. Temporary disability, total disability, loss of life, and loss of members are provided for in the schedule. Death compensation is computed on a graduated basis, based on the number of dependents, the per centum of wages running from 35 to 60, according to the number of those left dependent. Exception under the schedule is made in the case of alien dependents not residents of the United States. The employer shall furnish reasonable medical and hospital services and medicines during the first two weeks after the injury, and, when needed, not to exceed \$50 in value.

Utah—House Bill No. 147, introduced by Mr. Fitch, making it incumbent on operators of all mines employing twenty-five or more men underground to provide and keep in a readily accessible place at least two fire-fighting helmets; also to provide training for a crew in the use of the helmets, and for tests at least once monthly in the use of the helmets. Mines employing forty or more men underground shall be equipped with two smoke helmets of a design to be approved by the state mine inspector, and for every additional fifty men shall provide an additional smoke helmet. Mines employing twenty-five or more men underground shall be equipped with one resuscitating apparatus, a suitable

supply of auxiliary apparatus and complete first-aid-to-the-injured outfit; all coal mines employing twenty-five or more men shall be supplied with four safety lamps, four electric hand lamps, and four masks or helmets, provided with a supply of oxygen or air sufficient to sustain respiration for the user for at least one hour. The state mine inspector and his deputies are authorized to inspect all first-aid equipment at the mines, and where such equipment is found faulty or defective to notify those in charge to repair equipment and place in good order. Twenty-five thousand dollars are to be appropriated out of state funds, or as much as is necessary to be used in equipping the mines of the state in the interest of Safety-First to the miners. Violation of the act is constituted a misdemeanor.

Utah—Senate Bill No. 120, introduced by Mr. Wight, amending the act fixing the hours of employment in mines, smelters and works for the reduction of ores to provide that in any such reduction or refining works using a wet process for the reduction or refining of ores or metals, workingmen may, if they so elect, work not to exceed ten hours per day whenever the employment of other men working underground is dependent upon the operation of such reduction or refining works such additional time; and further providing that the wages for extra work shall not be less than one-eighth of the uniform wage paid for like work in the same locality. The present law limits the men to eight hours. The bill has passed the State Senate and is expected to be passed by the House. It has the endorsement of the miners as well as the operators.

SAFEST ELECTRIC RAILWAY

The Boston Electric Railway has received the American Museum of Safety award for being the safest electric railroad in the United States during 1914. The annual giving of medals to the American electric railway company which for the year of the award does the most to conserve the safety and health of the public, is one authorized by the family of the late Anthony N. Brady. Three medals are given, one of gold to the company, one of silver to the member of the operating staff who has most contributed to the successful record of the company, and one of bronze to the employe whose services have been of greatest value in the promotion of safety and health.

TESTIMONIAL TO DOCTOR DOUGLAS

At an informal luncheon, given at the Engineers' Club, in New York city, February 17, Dr. James Douglas was presented with a certificate of honorary membership in the American Mining Congress, which was voted to him at the Phoenix convention of the Congress.

The directors are permitted by the by-laws to bestow this testimonial upon one person each year. The privilege, however, has been exercised but four times during the fifteen years since the organization was created.

In presenting the certificate, Mr. Carl Scholz, president of the Congress, paid tribute to the many activities in which Dr. Douglas has been successful and to the wealth of friendship and esteem which has been earned by the courteous and sympathetic characteristics which have so endeared Dr. Douglas to the mining profession. Further expressions of esteem were voiced by Dr. George Otis Smith, of the United States Geological Survey, Acting Director Van R. Manning, of the United States Bureau of Mines, Mr. Horace V. Winchell, of Minneapolis, and Dr. A. R. LeDoux, of New York city.

One incident, related by Dr. LeDoux, is worthy of special mention, revealing, as it does, a phase of character not so generally known, perhaps, as some others, and yet just such a trait as one might expect to find in one who has at all times been ready to extend help to those needing assistance and who has always furnished inspiration to better effort through the example of his life. Describing a trip with Dr. Douglas, made for the purpose of examining a mining property, Dr. LeDoux told of their coming to an open cut which revealed a number of toads which had fallen to the bottom. Here they were imprisoned, unable to escape. Dr. Douglas stopped the party while he improvised a ladder to reach the bottom of the cut, and there, with his own hands, lifted the toads to the surface, where their means of continued existence was available.

Those present at the luncheon were Mr. W. L. Saunders, president of the American Institute of Mining Engineers; Mr. Carl Scholz, president of the American Mining Congress; Messrs. M. S. Kemmerer, of New York; Samuel A. Taylor, of Pittsburgh; Hennen Jennings, of Washington, D. C., and E. A. Montgomery, of Los Angeles; directors of the American Mining Congress; Mr. J. F. Callbreath, of Denver, secretary of the Mining Congress; Dr. George Otis Smith, of the United States Geological Survey; Mr. E. W. Parker, of the United States Geological Survey; Mr. Van H. Manning, of the United States Bureau of Mines; Mr. Sidney J. Jennings, of New York; Mr. Horace V. Winchell, of Minneapolis; Mr. E. B. Kirby, of St. Louis; Dr. W. R. Ingalls of the *Engineering Mining Journal*; and Messrs. Karl Eilers, Bradley Stoughten, John H. Janeway, Dr. Albert R. LeDoux and Mr. Archibald Douglas, of New York.

WATER IN MINES

One of the factors operating to make the mining of anthracite continue to be more expensive is the pumping and hoisting of water from the mines. The quantity of water that must be pumped and hoisted out of the anthracite mines of Pennsylvania has increased 10 per cent. in the last ten years, and will continue to increase. It is estimated that every ton of coal removed from the mines involves the removal of a ton of water every year thereafter so long as the mine is operated. The present capacity of the pumps in use at the mines is given as 1,037,009 gallons per minute. The quantity of water actually delivered at the surface in 1914 is estimated at 489,600 gallons per minute, or about 250,000,000,000 gallons a year. The extra capacity of the pumps is necessary in times of extra heavy flow of water.

THE ADJUSTMENT OF INDUSTRIAL DISPUTES AFFECTING THE PUBLIC SERVICE

By HON. JAMES A. EMERY, WASHINGTON, D. C.

Address Before the Seventeenth Annual Session of the American Mining Congress, Phoenix, Arizona, Dec. 7-11, 1914.

Ever since the organization and report of the Anthracite Coal Strike Commission in 1902, an increasing amount of thought has been given to practical methods of settling the enormously destructive and wasteful industrial controversies which at times, paralyzing industry and transportation, have frequently caused incalculable economic loss; not only greatly injuring and sometimes ruining individuals, but obstructing or stopping service upon which the public is dependent for daily necessities. The Lemieux Act, Canada's legislative experiment with this problem, has been the subject of much discussion in our own country. It does not deny the right to strike or lockout, but endeavors to compel the parties to the controversy to submit their differences to an arbitration, the findings of which either or both may subsequently reject but without which neither may legally strike or lockout. It is contended by the Canadian authorities and by many shrewd observers that the act has a valuable moral effect. Although it is admitted that in the final test it is incapable of practical enforcement, since events have demonstrated that government could not, without civil war, undertake to confine a labor organization and its sympathetic supporters who struck in disobedience of the law. But the law and the public opinion which it developed have undoubtedly had the notable moral effect of decreasing trivial strikes and causing both parties in controversies to think before acting. The principle of the Canadian Act cannot, however, be applied to private industry in our country under our organic law. It would create a condition of "involuntary servitude."

The mere stoppage of private industry, however serious to those involved, does not represent the form of strike most injurious to the public. We suffer from notable strikes, or threats of strike, not only on interstate railroads but on the various traction systems upon which cities, great and small, and their suburban communities which have grown up about them, are absolutely dependent not only for daily transportation from residence to work, but for a continuous supply of the necessities as well as the conveniences of daily life. The suspension of such service is a community disaster, sometimes equal in the loss, suffering and inconvenience which it entails to the stoppage of the local light or water system. What is true of such a community catastrophe is true in a larger way not only of the great transportation systems, but of a few industries producing the fundamental necessities of life.

In purely private employment, these deliberate and concerted stoppages of industry, while often entailing great losses to both parties, are nevertheless the inevitable incident of the exercise of elementary private rights. The state can neither compel individuals to give work nor others to take it. The losses directly and indirectly suffered, however deplorable, are but incident to the exercise of personal rights, which, however directed by bad judgment, are part of the tax paid for the preservation of individual freedom, but when the service of a corporation or business becomes wholly affected with the public interest or dominated by that feature so that its uninterrupted operation is essential to well-being or the life of the community, is it not a question whether corporations or

large groups of individuals organized for the furtherance of their private interest, may not have their collective or individual contract of service controlled and regulated to protect the interest of the public?

It is not suggested that any individual or combination of individuals can be compelled to remain at work, but in view of the public character of the service rendered, may the state recognize and enforce, under penalty, a contract of service by which the individual employed by a public utility and the public utility itself, each under appropriate penalty, agree that the one will not lock out its employees, nor the other become party to a collective movement to paralyze the public service by quitting until the issues relating to conditions of employment have been passed upon by some impartial tribunal constituted by the parties. Such a contract, viewed from the standpoint of the employer operating the public utility, means that he agrees by virtue of the franchise which he receives and the character of his relations to the community, that he will condition his freedom of action by agreeing in his franchise not to do that which will deprive the community of his service. The individual or organized employee is free to make or reject the contract offered. He is not compelled to enter into the service of the public utility, but having done so, he conditions his quitting by voluntary contract made in view of the character of the service rendered. Would such a contract make either party sustain any involuntary relation with the other? Would not the condition attached to the contract be one justified by the character of the service rendered and the public interest involved? For any form of arbitration which compels either party to continue to sustain a relation created without preliminary condition, there can be found but little defense. Private employment, least of all, discloses any condition which would sanction it. The issue here presented is whether or not the interest of the public in the continued operation of a utility privately owned and operated,

but dedicated to a public service, is so dominant in the light of existing social conditions and necessities that its voluntary contracts of employment may and ought to be so conditioned.

The discussion may well proceed within a very narrow range of obvious public utilities. The principle, once recognized, is capable of transfer, always within rational limitations, to other spheres of like action. Within such limits, is the application of the principle suggested desirable? It is obvious that it does not apply to all fields of industrial controversy, nor can any remedy hope to, but would it not ameliorate and greatly modify the conditions which too frequently exist in a vast and immediate field of necessary activity? Too frequently, in discussions of these problems, we undertake to cover too great an area of disturbance. A sound principle, rationally applied, within practical limits of immediate need and recognized authority is a more profitable subject of discussion than the extension of untried and unprecedented proposals to the widest areas of disturbance. Sufficient for the day is the problem thereof.

UNITED MINE WORKERS

A five-days' session of the International Board of the United Mine Workers of America was held at Indianapolis, beginning February 2, routine matters affecting the organization being considered. The outcome of the election for the three principal international officers was announced, the terms being for two years. President John P. White and Vice-President Frank J. Hayes were re-elected without opposition. Secretary-Treasurer William Green was again elected, receiving 122,768 votes to 45,378 cast for W. L. Simms, of Linton, Ind., his opponent for the place. An audit of the books of the United Mine Workers showed a balance in the treasury December 1, 1914, of \$110,938.66. The balance in the treasury on December 1, 1913, was \$278,032.30.

COMPULSORY ARBITRATION

By SAMUEL O. DUNN, CHICAGO, ILL., EDITOR OF THE RAILWAY AGE GAZETTE.

Address Before the Seventeenth Annual Session of the American Mining Congress, Phoenix, Arizona, December 7-11, 1914.

The president of the American Mining Congress has asked me to write a paper on compulsory arbitration, and especially to indicate my opinion as to the advisability of advocating some method of bringing about such arbitration, or as close an approximation to it as would be practicable under our existing form of government. I regret that I have not had opportunity, since I consented to write something on this subject, to get together a larger amount of material and to put my thoughts in satisfactory form. All I can do is to outline the experience of a few countries with different forms of conciliation and arbitration, and indicate in a general way the conclusions which it would seem we may reasonably draw from their experience as to the form of governmental action regarding labor disputes which would be the most practicable and expedient under the conditions prevailing in the United States.

Governmental intervention in disputes between some classes of employers and employes is a natural result of the development of modern industry. When industries were small, and there were no large organizations of employers or employes, the public had little interest in controversies between labor and capital. The number of men employed by any person or concern was insignificant, and it made little difference to the public if there was a lockout or strike.

Owing to the course of industrial development there are now many concerns which employ thousands of men. In certain lines of industry there are organizations including many business concerns, on the one hand, and the employes of many concerns, on the other hand. A lockout or strike in one of these large concerns or lines of industry may result in many millions of capital and many thousands of men being rendered idle.

This has given the public a proper and important interest in disputes between capital and labor which it did not formerly have. The public feels concern regarding the economic waste that will result from such large investments and so many productive workers being rendered idle. It feels a special concern regarding the possibility of lockouts or strikes in certain industries because they would cut it off from the very necessities of life.

The situation as respects industries producing something or rendering some service the unbroken production or rendering of which is not essential to the public welfare is entirely different from the situation as respects industries producing something or rendering some service the unbroken production or rendering of which is essential to the public welfare. The public would not feel immediately and acutely the effect of the closing down of the steel mills, for example. It would feel more speedily and keenly the effect of a complete closing down of the coal mines, especially if this occurred in a season when the demand for coal was great. Still more keenly and acutely would it suffer from a serious interference with the operation of the railways, for under conditions of modern civilization an interruption of railway service would soon arrest most of our industrial and commercial operations, and menace with starvation the entire population of many communities.

Whatever may be true as to industries on which the public is not dependent for necessities of life, it seems to be perfectly clear that the government has the right and duty to take whatever steps may be necessary in order to prevent serious interferences with the production of commodities or the rendering of services on which the comfort, the welfare

and even the life of the people are dependent.

A distinction is drawn in law between public utilities and other concerns, this distinction being based on the theory that the operation of only the former is of primary importance. It would seem that under modern conditions the uninterrupted operation of coal mines is almost, if not quite, as important to the public as the unbroken maintenance of the service of public utilities and railways, and that, therefore, there is as much justification, economic and moral, if not legal, for government interference in disputes between coal mine operators and their employes as between railways and public utilities and their employes.

Whether this interference should take the form of compulsory arbitration seems, however, very questionable. Compulsory arbitration involves, first, compelling the parties to submit their differences to arbitration, and, second, compelling them to accept the award made. This is merely a modified form of slavery. To require capitalists to give employment to men or bodies of men whom they do not want, at wages which they do not want to pay, or to require an individual workingman or a body of workingmen to work for concerns for which they do not want to work, at wages which they do not want to accept, is inconsistent with enlightened ideas of liberty. It is a form of industrial conscription and should not be resorted to except in cases as extreme as those which justify military conscription.

It is not necessary, if the government is to intervene in labor disputes, whether on railways or in coal mines, for it to go to the length of adopting compulsory arbitration. Furthermore, the experience of governments which have tried various forms of interference in such matters has indicated that attempts at compulsory arbitration are not likely to be successful and that other forms of governmental intervention are likely to be more successful and to produce more satisfactory results.

The government which has made the most thorough and interesting trial of compulsory arbitration is that of New Zealand. It passed a compulsory arbi-

tration law in 1894, entitled, "An act to encourage the formation of industrial unions and associations and to facilitate the settlement of industrial disputes by conciliation and arbitration." The original act and the various amendments were united into a compilation act in 1905 and various amendments have been passed since.

The act as it stood in 1905 provided for the registration with the Secretary of Labor of industrial unions and associations of either employers or workers. Registration made the union or association a body corporate and rendered both it and its members subject to the jurisdiction of a conciliation board and an arbitration court. Any industrial union might apply at any time for the cancellation of its registration, but such cancellation did not relieve the union or any of its members from the obligation of any agreement or award in force at the time, nor from any penalty or liability. The cancellation of registration on the part of the labor union removed it from the jurisdiction of the conciliation board and the arbitration court. But employers could not thus escape. They had to accept arbitration if their employes were registered and demanded it. Under this law, therefore, arbitration was, in a sense, voluntary for the workers but compulsory for the employers.

The colony was divided into eight districts in each of which there was a board of conciliation consisting of three or five members, one or two being elected by the unions of employers, an equal number by the unions of workers and the third or fifth member by the other members. The court of arbitration consists of three members, a president and two assessors, all appointed by the governor, on the recommendation of the unions of employers and of workers. An award binds not only labor unions but also all individual workers working for an employer on whom the award is binding. Unions of employers or of workers and individual employers are liable to fines not exceeding \$2,500, and individual workers to fines not exceeding \$50, for breaches of awards.

In practice the conciliation boards were practically ignored from the first.

and almost every case went before the arbitration court. In the absence of this legislation, which, it will be noted, applied to all classes of commercial and industrial undertakings, including agriculture, workmen would have looked to their employers for improvements in their conditions of work and raises in their wages. But because the law existed, almost every question regarding conditions of work and wages had to be settled by the arbitration court. The awards and agreements which have been made under it cover a great variety of subjects, including minimum wages, hours of labor, permits to incompetent workers, limitation of apprentices, periods of apprenticeship, piecework, distribution of work, holidays, meal hours, provision of tools, modes of payment, notice of dismissal, scope and duration of awards, interpretation of awards, extension of awards, breaches of awards, and fines.

In the earlier years of the operation of the act conditions in New Zealand were prosperous and the awards usually resulted in advances in wages. During this period compulsory arbitration was in high favor with labor. But when the earlier awards began to expire conditions were not so prosperous, and when the workers appealed to the court for further increases in wages these were often refused. Labor then speedily began to show dissatisfaction with the law and the court. This dissatisfaction finally manifested itself in an acute form. In November, 1906, disregarding the provisions of the law, the employees of the street railways of Auckland declared a strike. The men's grievance was that a conductor had been discharged for alleged misconduct. Both the company and the striking employees were fined for having violated the arbitration law. In February, 1907, there was another strike, this time in the meat packing houses at Wellington. In this case 266 strikers were fined \$25 each.

The next year there was a strike among the coal miners of the West Coast which lasted for eleven weeks. The men claimed that seven miners who had been dismissed had been discharged because they were active unionists and socialists. The company offered to take

them back, but the miners refused to work unless some arrangements were made to prevent similar occurrences in future, and offered the remarkable suggestion that when men were to be dismissed they should be selected by ballot! The union was cited before the arbitration court and fined \$375. Being unable to collect the fine from the union, the court proceeded against the men individually and collected about \$250.

These strikes were followed by others, and in September, 1908, the Minister of Labor reported that since 1906 there had been twenty-three strikes, that the total number of strikers had been 1,117, the number of men rendered idle 2,389, the duration of the strikes 317 days, the loss of wages to workmen almost \$90,000 and the loss to employers about \$80,000. The next year there was a coal mine strike for a very curious reason. A new workmen's compensation act was to go into effect. The coal mine operators wished to insure themselves against loss in the insurance department run by the colonial government itself. The government insisted that before it would write the insurance the employees of the mines must submit to physical examination; and the men struck rather than submit to physical examination. The government then yielded and authorized its insurance department to issue policies without examination. Soon afterward there was a strike of the miners in the government coal mines at Point Elizabeth.

The chief purpose of the arbitration law was to prevent lockouts and strikes. It had succeeded in preventing lockouts but had failed to prevent strikes. Therefore, it was amended on January 1, 1909, to provide that every worker who was a party to an unlawful strike should be fined not exceeding \$50 and every employer who was a party to an unlawful lockout should be fined not exceeding \$2,500. The boards of conciliation were abolished and councils of conciliation substituted. Three permanent commissioners of conciliation are appointed by the government. In case of a dispute one of them goes to the scene and tries to effect a settlement. If he fails, he sets up a council of conciliation consist-

ing of one, two or three assessors representing the employers and an equal number representing the workers. Every dispute must be referred to such a council before it can be carried to the arbitration court. There is, however, a way by which the workers may altogether evade the purpose of the act and strike without danger of punishment. After an award applying to them has expired they may cancel their registration, after which they cease to be subject to the law.

I have no detailed information on the subject, but I understand that the law as amended in 1909 has worked as badly as the original act and that strikes have continued to occur in New Zealand. In other words, compulsory arbitration there has failed to prevent strikes, and the government has not even been successful in all cases in enforcing the awards made by the arbitration court. In this respect, as in the ownership and operation of mines and railways, and in most other respects, paternalistic government in New Zealand has been very much less of a success than the advocates of similar government in this country would have us believe.

The British colonies have tried within the last two decades many experiments with social and labor legislation. That in New Zealand with compulsory arbitration is one of them. Another of the most interesting and instructive of them has been that made by our neighbor, Canada, by the passage and administration of the "Industrial Disputes Investigation Act," more familiarly known, after its author, as the "Lemieux Act." This measure is of especial interest to those engaged in the mining of coal because its enactment grew out of a coal mine strike in Lethbridge in the southern part of the Province of Alberta. This strike began in the summer of 1906 and continued until late in the fall, and the people of Western Canada suddenly awakened to the fact that on the verge of a northern winter they were confronted with the danger of a serious fuel famine. The strike was finally settled. But the impression made on the public mind was so deep that legislation to prevent the recurrence of such conditions

was passed and went into effect before the end of March, 1907.

The Lemieux Act applies to railroads, street railways and other public utilities and to mines of every class, metalliferous as well as coal. It provides that before a lockout or strike can legally take place in any of these industries the parties must refer their differences to a board for hearing. The party about to lockout or strike must give notice to the government of its intention, together with a statement of the nature of the controversy. The Minister of Labor then calls on each party to name a member of the board. The two members chosen by them are given an opportunity to agree on a chairman. If they fail to do so within a specified time, the Minister of Labor appoints the chairman; and if either party fails to name a member of the board to represent it, the Minister of Labor appoints him, also.

The board as thus constituted has almost the powers of a court. It may subpoena witnesses, compel the production of documents, and take testimony; but its duty is primarily that of a conciliation and mediation board. If the board can bring about a settlement by conciliation it prepares its report and sends it to the government. If it cannot do this, it takes testimony and prepares a report summarizing it, and also sets forth its conclusions as to the merits of the controversy and its recommendations to the parties and gives this report to the public.

There the intervention of the government ends. The law does not require acceptance of the award. According to all reports, this very simple measure has worked well. Hon. W. L. MacKenzie King, formerly Minister of Labor of Canada, delivered an address before the Railway Business Association in New York on December 19, 1912, in which he said that during the five and one-half years up to September, 1912, there had been 132 applications made for the formation of conciliation boards, and that strikes were averted in all but fifteen cases. Of these controversies, forty were in coal mines, ten in metalliferous mines, fifty-three on railways and ten on street railways.

The only similar federal law which we have in this country is the Erdman Act, as amended by the Newlands Act. This measure applies only to disputes between railway companies and railway employees directly concerned with the operation of trains. It creates a permanent mediation and conciliation board of three members. In case of a dispute which may lead to a lockout or strike, either of the parties may appeal to this board, which will then tender its good offices. But its advances may be legally repulsed, for, unlike the Canadian law, the act does not prohibit a lockout or strike in advance of conciliation or arbitration. If the good offices of the federal mediators are accepted they proceed to the scene of the controversy and try to bring about an agreement. If they are unsuccessful in this the law provides that the parties may resort to arbitration by a board composed of two representatives of the railways, two representatives of the employees and two other persons chosen by them. If the representatives of the railways and employees do not agree on the impartial arbitrators they may be selected by the board of mediation and conciliation. Once the controversy has been submitted to arbitration, the award must be accepted by the parties and put into effect for one year.

On the whole, the results of the operation of this act have been good. Mediation and arbitration under it have averted many serious strikes. But the law has grave defects. Why should it apply only to employees of railways directly concerned in the operation of trains? A strike in railway shops might in a very short time cause a serious interruption of traffic. And why should the law apply only to railways and their employees? A coal mine strike may cause as much loss and suffering to the public as a railway strike. Finally, why should lockouts or strikes be permitted on railways and public utilities and in coal mines before the questions in controversy have been submitted to somebody representing the public? The public has even more at stake than either of the immediate parties. May not the public, therefore, properly demand that at least all the facts shall be given to it before

its rights are disregarded and its interests sacrificed?

Another criticism which has been forcibly urged against the Erdman-Newlands law is that while conciliation and arbitration under it may prevent lockouts and strikes, they do not necessarily result in fair settlements. Of the six members of the arbitration board as now constituted, only two are in any sense impartial. The other four are avowed partisans. And the only two who are impartial are never experts, for they are always chosen from some business or profession entirely different from that in which the dispute has arisen. In these circumstances the award is necessarily made by the two impartial arbitrators, and, as they lack expert knowledge, and as the time allowed for the proceeding is short, the usual result is a mere splitting of differences, which settles no principles and always results in some increase in railway wages, whether fair or not.

The most thorough investigation of the railway labor situation in this country ever made was that of the arbitration board which settled the controversy between the eastern railways and their locomotive engineers some two years ago. This board was not organized under the Erdman Act, but was composed of one representative of labor, one representative of the railways and five impartial arbitrators, all of whom were very prominent business and professional men. So impressed was this board by the shortcomings of the Erdman Act and the dangers of serious railway strikes that it recommended legislation forbidding such strikes prior to arbitration and providing for federal and state wage commissions to deal with labor controversies on railways.

The most serious shortcoming of the Erdman-Newlands law is that it does not prohibit strikes and lockouts before arbitration; and the best feature of the Lemieux Act of Canada is that it does prohibit them before the facts regarding the questions involved have been given a thorough airing.

With your permission I shall suggest, with some diffidence, a plan for legislation which I believe would be better than

either the Erdman-Newlands Act or the Lemieux Act. The Erdman-Newlands Act should be so amended as to make it apply to both controversies between railways and any or all of their employees, and between coal mining companies and their employees. Whether its extension to disputes in coal mines would be constitutional is a question which I expressly refrain from discussing at this point. The present federal mediation and conciliation board should be retained with its present functions, but its jurisdiction should be extended in the same measure as the provisions of the law under which it acts. Strikes and lockouts in advance of arbitration should be prohibited in the industries mentioned. In case of arbitration the arbitration board should be composed of one representative of the employers, one representative of the employees, one member of the Interstate Commerce Commission, one member of the new Interstate Trade Commission, and a fifth member to be chosen by these four. The testimony taken by the board, together with its conclusions and recommendations, should be made public, but, as in Canada, the award should not be legally binding on the parties.

What would be the advantages of such legislation? It would provide machinery for governmental intervention by which agreements between the parties themselves might be brought about. It would prevent lockouts and strikes until after the facts regarding all the points in controversy had been laid before the public. It would secure arbitration by a board, a majority of whose members would represent the public, and which at the same time would be so constituted that we may fairly assume that it would act with expert knowledge. And after the parties had had time to think deliberately about the points in controversy, and after a board as thus constituted had ascertained the facts and presented them to the parties and made them public, together with its recommendations, it is almost inconceivable that any concern or body of workingmen would have the hardihood to reject the board's findings and recommendations and resort to a lockout or strike.

That such federal legislation would be constitutional as applied to railways there cannot be any serious doubt. Whether it would be constitutional as applied to coal mines is a different question. But if such federal legislation as to disputes in coal mines would not be constitutional, unquestionably similar state legislation would be so. Furthermore, similar state legislation applying to public utilities of all kinds would be constitutional.

Would not such regulation of the relations between capital and labor secure all of the advantages of compulsory arbitration and at the same time steer clear of its disadvantages? New Zealand has tried both compulsory arbitration and compulsory acceptance of awards. Canada has tried compulsory arbitration with voluntary acceptance of awards. Under the Erdman-Newlands Act we have tried voluntary arbitration with compulsory acceptance of awards. In my opinion the system which would be best suited to our own conditions and needs would be that of compulsory arbitration with voluntary acceptance of awards, carried out under some such plan as that which I have outlined.

John H. Robinson, the newly elected secretary of the Arizona Chapter of the American Mining Congress, was made the recipient of a very handsome Knights Templar ring and a gold chain by Yavapai County friends at Prescott on February 9. Mr. Robinson was formerly city clerk of Prescott and left that city to assume his new duties as secretary of the Mining Congress Chapter at Phoenix.

CORRESPONDENCE

UNIFORM MINING COMPANY REPORTS

PITTSBURGH, PA., Feb. 17, 1915.

MR. JAS. F. CALBREATH, JR.,
Secretary American Mining Congress
Washington, D. C.

DEAR MR. CALBREATH:

In connection with the Philadelphia meeting of the American Mining Congress, I read a paper on the number and variety of reports, both national and state, now required to be made by mining companies. In this paper,

as you will recall, I undertook to point out the slight differences in some of these reports as to the data required by them, and also the time at which they were required to be made. The discussion and consideration of this subject resulted in the recommendation that a committee of the Mining Congress be appointed to cooperate with representatives of the United States Geological Survey and the United States Bureau of Mines, with a view of standardizing these reports, both as to the data required and the time of making them.

Many things have conspired to prevent the carrying out of the suggestion made at that time, but now that the Mining Congress has embarked in the publication of a JOURNAL, the time seems propitious that through this medium we may be able to arouse the attention of those interested in this matter to the extent that they will lend their influence in assisting in the bringing about of a standardization of these various national and state reports as above outlined.

If this should meet with your approval, I should be glad to have this matter considered through the columns of the JOURNAL, or in any other way that will bring about the result, which is so much desired by all mining companies.

Yours very respectfully,

S. A. TAYLOR.

THE MINING CONGRESS JOURNAL,

BISBEE, ARIZONA, Jan. 28, 1915.

DEAR MR. CALLBREATH:

The time has come when the public at large should be brought to realize the importance to our national life and prosperity of the mining industry of the United States. While agriculture is dignified by representation in the Cabinet and Congress appropriates large amounts each year for assistance and research, coal and metal mining have been shamefully neglected or unfairly treated through ignorance of their needs and ambitions. The reason for this is not alone the lack of personal representation in the Senate and House of Representatives, but rather the obvious lack of organization without which individual effort is usually futile and misunderstood. To obtain a respectful hearing and to exert influence commensurate with the importance of the object to be attained, it becomes essential that the mining industry should act as a unit and put its case squarely before the public

and trust to the inherent sense of fairness of the American people for a favorable decision.

THE MINING CONGRESS JOURNAL should serve as a means of doing this and as an open forum for discussion of subjects concerning legislative and social questions should, without infringing on the function of technical publications, be of great assistance to those interested in mining and instruction to the people at large. I, therefore, believe that through the publicity which the JOURNAL can afford to the important work being carried out by The American Mining Congress, great benefit to mining may result and our governing bodies be brought to a fair conception of the needs of the industry.

Yours truly,

WALTER DOUGLAS.

OHIO MINE SCREEN LAW CONSTITUTIONAL

The so-called Ohio mine screen law has been held to be constitutional by the United States Supreme Court in a decision handed down February 23. The law provides that miners shall be paid according to the weight of the coal within the car in which the coal is removed from the mine. Following the passage of the law, the coal operators brought suit, taking the ground that it was in violation of the Fourteenth Section of the Federal Constitution and that its enforcement was not within the police power of the state. The Federal Court for the Northern District of Ohio, to whom an appeal was made by the Rail & River Coal Co. against the Ohio Industrial Commission for an interlocutory injunction to restrain the industrial commission from enforcing this law, declined to grant the injunction. An appeal was then taken by the operators to the United States Supreme Court for a final decision as to the law's constitutionality.

About 10,000 acres of coal lands in West Virginia were exhausted during 1914.

The West Virginia Supreme Court of Appeals has recently ruled that the indicating of a purpose to surrender a lease and to make no further payments to the lessors by the lessee of coal and the subsequent failure of the lessee to make further payments does not establish a surrender. The president of a corporation, as such officer, has no implied authority to surrender a lease belonging to the company. The lease must be sur-

The Kentucky Court of Appeals in a recent decision ruled that where a miner was required to sound the roof of his working place and to set props after blasting he assumed the risk of being injured through a fall of slate when he removed coal without conforming to the regulation. The court also ruled that, although the person injured was but twenty years old, since he had worked in the mine for more than a year and under-



U. S. BUREAU OF MINES SAFETY STATION, McALESTER, OKLAHOMA. (See page 69.)

rendered by corporate action the same as a conveyance of property.

The eighth annual edition of *Metal Statistics*, published by The American Metal Market and Daily Iron and Steel Report, is just out. The volume is a real mine of statistical information and can truly be said to be almost indispensable in its particular field. An addition, and one that will be appreciated by many, is the including of reports on the production of coal, petroleum and cement. An examination of its 344 pages justifies one in feeling that nothing that should be found in a handbook of this character has been overlooked.

stood the work, his age should not be constituted a factor.

The smoke problem at smelting and ore-roasting plants, which has long been the subject of contention, is treated comprehensively in a bulletin just issued by the United States Bureau of Mines. The Bulletin, No. 84, entitled "Metallurgical Smoke," has been prepared by Charles H. Fulton, consulting metallurgist. The topic is treated in a manner entirely free from technicalities, presenting the information in such form as to be easily understood by the layman.

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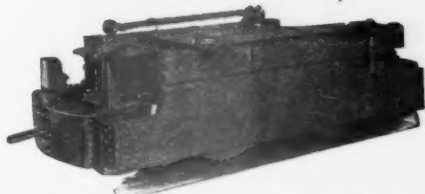


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